# Hitchcock's

# **Machine Too** Blue Book

DECEMBER, 1930

TWENTY-FIFTH YEA

10-in-HEAVY I

Production

THE OUTSTANDING DRI DEVELOPMENT OF THE YE

Ball bearing repulsion induction motor belt-impossible to sta motor or slip belt up 150%-3 spindle speed -adjustable table-bo column frame - Jacob chuck - large capaci are some of the featur found in this drill.

Full details and price on reque

Buffalo Forge 161 Mortimer Street,

BUFFALO. **NEW YOR** 

In Canada: Canadian Blower & Forge Co., I Kitchener, Ont.

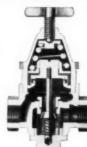


Note heavy, simplified design

### HANNIFIN

# Air Pressure Regulating Valves

Sectional view shows the superior construction of the HANN/FIN Regulating Valve. Note particularly that piston type plunger is employed instead of metal diaphragm.



# Air Costs Reduced by Pressure Regulation

HE HANNIFIN VALVE represents the latest development in economical control of air pressure. Every machine equipped with it is independently operated at the correct working pressure—resulting in a great saving of compressed air and insuring efficient, uniform production. The Valve provides quick and, accurate control without diminishing volume and where frail work is involved, it prevents possible distortion. A wide range of adjustment is available to meet your requirements.

### HANNIFIN PRODUCTS

Standard Air Operated Chucks Special Air Operated Chucking Devices Air Operated Clamping

Devices
Air Operated
Aganding Mandrels
Ale Operated Presses
Air Operated Jigs and
Fixtures
Rotating Double-Acting

Rotating Double-Acting Air Cylinders Stationary Double-Acting Air Cylinders Air Operated Valves Air Control Valves for all Purposes The cross-section view, shown above, will give you an idea of its simple construction, which assures practically uninterrupted service. Made in four sizes, with \% 1.\frac{1}{2}, \% 1.\frac{1}{2} and 1.\frac{1}{2}, \text{P. connections and complete with pressure gauge.

Send for the HANNIFIN Catalog—a complete guide to cost-saving, air-operated production equipment

HANNIFIN MFG. CO. 621 S. Kolmar Ave., CHICAGO, ILL.

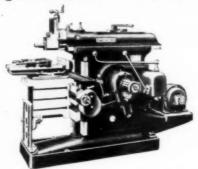
Reduce Costs!

# Memorandum Of Machinery or Equipment Wanted

Name	
Alben	
We are in market for	
***************************************	
	-35
***************************************	
***************************************	
000000000000000000000000000000000000000	
######################################	
***************************************	
	2

Mail to Hitchcock Publishing Co., 508 S. Dearhorn St., Chicago, M., or to any advertiser

## Dependable Accuracy



### AMERICAN Auto-SHAPERS

REAL test of shaper efficiency is the ability to perform all classes of work at high speeds and with coarse feeds, maintaining at the same time dependable accuracy. The "American" Auto-Oiled Shaper meets this test to a degree that marks it as a leader in the shaper field. Greatly improved design, with the weak points of the average shaper eliminated, power far in excess of average demand and convenient, simple operation insure immediate success and guarantee profitable service for every installation.

### 12 Points of Superiority:

Tremendous Cutting Power—Unparalleled Rigidity—Permanent Accuracy—Automatic Forced Lubrication—Multiple Splined Shafts—Timken Roller Bearings—Multiple Disc Clutch and Brake—"V" Type Ram—Improved Table Support—Helical Gears, Alloy Steel Hardened—Tu-Piece Bull Wheel—Centralized Control.

### The American Tool Works Company

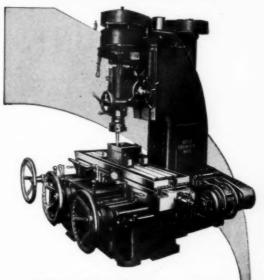
Cincinnati, Ohio, U.S.A.

LATHES

RADIALS

SHAPERS

### No. 5 JIG BORER and Vertical Miller



With Rapid Power Traverse cross or longitudinal, power down feed to spindle, compound gearing for fine adjustment of cross and longitudinal screws, clamping device for rigidly locking table and saddle.

Extra attachments include rotary table, boring heads, bars, arbors, etc.

REED-PRENTICE CORP., Worcester, Mass.

# COUNTS

Where high-speed production and precision are both demanded, coolant and a volume of coolant are essential. Gallons upon gallons of coolant liquid can be depended upon with a

# GUSHER COOLANT

Primed by gravity....no packing nuts to get out of order.... a simplicity of design that makes for years of service.... all these make "GUSHER" a better pump for better machines.

Send for our new catalog

### THE RUTHMAN MACHINERY COMPANY

528 E. Front St., Cincinnati, Ohio



Model SLO

### Economical and Profitable



# The New No. 2 Bolender Gear Burnisher

PROVIDING a new, entirely successful and proven automatic burnishing cycle, the BOLENDER gives you increased capacity and new efficiency. Its unusually wide range—1½\* to 14\* (greater if necessary)—its simplicity of construction and operation, aid materially in cutting your gear finishing costs.

GEARS are handled while mounted in a horizontal plane—with center line vertical—avoiding overhang and uneven weight distribution, and assuring a uniform burnish regardless of the gear's size. Automatic lubrication, Timken and Hyatt bearings throughout, Logan air equipment and G-E controls, conveniently centralized, are some of the standard features.

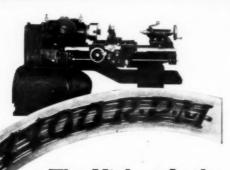
Write Today for Complete Information

### CITY MACHINE & TOOL WORKS

3 NORTH JUNE ST.



DAYTON, OHIO



### The Highest Lathe Speed Ever Attained!

THE NEW Monarch SUPER High-Speed Lathe — with spindle speeds up to 4400 R. P. M. — marks a new epoch in lathe practice. It makes the use of tungsten-carbide turning tools both practical and economical.

Speed, economy and high production records, which a few months ago seemed impossible, are now every-day occurrences. Records of this lathe's performance—in comparison with those of an ordinary high-grade lathe using high-speed turning tools reveal time savings ranging up to 1000%.

The combination of a perfectly Timkenized spindle and an antifriction tailstock center that will stand up to terrific speeds together with extreme rigidity and weight—make these records possible.

Bulletin 146 gives you FACTS, FIGURES, PROOF! Write today for your copy

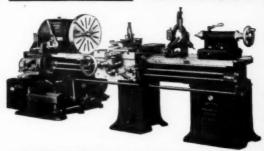
The Monarch Machine Tool Co., Sidney, O. New York Sales Office: 857 Graybar Bldg.

Monarch lathes

Helical Gears - Timken Bearings
SMOOTHER..QUIETER..MORE POWERFUL

# BRADFORD

"All Geared" LATHES



### A BRADFORD Guarantees Low Turning Costs

THE ability to handle the heaviest work smoothly and easily, precision equal to the most exacting requirements, convenient operation and consistently economical production—these are some of the reasons you can turn out better work at less cost on a BRADFORD Lather. They have tremendous power—yet are practically vibrationless even when pushed to the limit. Tooth and chatter marks are absent. BRADFORD production figures on your own parts—large or small—will point the way to substantial savings. Send us your blue prints for complete information—there's no obligation.



### Bradford Unit Type Drilling and Tapping Heads

Self-contained, motor drive units, designed for one or more heads to be built into one unit at any angle from horizontal to vertical. Spindle speeds from 75 to 2000 R. P. M. For single or multiple spindle drilling and tapping.

Illustrated Folder on Request

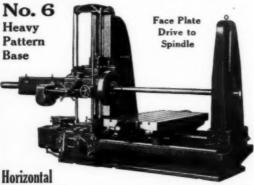
### The Bradford Machine Tool Co.

Precision Lathe Builders Since 1840

657-671 Evans Street,

Cincinnati, Ohio

# The New Improved DEFIANCE



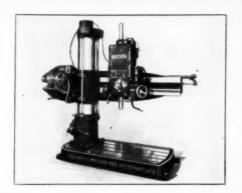
### Boring, Milling, Drilling and Tapping Machine

The Defiance Line of Horizontal Boring Mills embodies many special features including independent rapid traverse to head and platen in all directions, moving 84\* per minute; thoroughly enclosed head; forced feed lubrication; centralized control; unit construction of head, feed and speed boxes, and many more efficient aids to production. Simplicity, great strength and ample power enable you to handle a wide range of work with profit.

Write for the descriptive folder, or for the complete Catalog of "The Defiance Line" of Cylinder Boring Machines, Heavy Service Drilling Machines. Rai Drills, Horizontal and Vertical Multiple Drilling Machines, Multiple Tapping Machines and Valve Grinding Machines.

### The Defiance Machine Works Defiance, Ohio

Designers and Builders of Precision-Production Machine Tools and Special Woodworking Machinery



# The Dreses—

Multi-Duty Radial Drill

Outstanding features include the exclusive three point support construction which carries the head on the arm; maximum number of speeds with fewer gears; hand clamping of column from head; all control levers on head, below top of arm, within easy reach; ball bearing equipped throughout. Sizes 3 to 8 feet.

Write for descriptive bulletin

The Dreses Machine Tool Co., Cincinnati, O.

General Distributors

JOSEPH T. RYERSON & SON. INC.

Offices in Chicago and Other Principal Cities

Associated Machine Tool Lines

Ohio Shapers and Planers

Monotrol and Tritrol Lathes

Ohio Horizontal Boring, Drilling and Milling Machines Dreses Radial Drills



### Well! Here It Is!

A Hand Operated Die Head that will accomodate the new NAMCO Circular Chasers. It's the running mate to the already famous "DR" Die and we call it the

### NAMCO "DS" Die Head

This "DS" Die is for use on machines where the die head is stationary and the work revolves. It has the same advantages of simplicity in construction and accuracy of operation that are characteristic of all NAMCO Dies but never before were we in a position to furnish a hand operated die for use with the Circular Chasers.

Complete details will come to you immediately upon receipt of your inquiry. And if it so happens that you don't already know all about the NAMCO Circular Chasers, we'll tell you about them also. Ask for Bulletin DS-3002-B.

### The National Acme Co.

Cleveland, O.

New York City



Windsor, Vt.

Detroit-Chicago

Representatives in Principal Cities



### 16" and 18" Modern, Low-Priced Lathe

with

Double Back Gears,

Quick Change Gear Box,

Chasing Dial,

Lead Screw and Feed Rod

Standard equipment includes power cross feed, graduated compound rest and cross feed, steady rest, face and driver plates, tool post, centers, double friction clutch countershaft and wrenches.

Lengths of Bed, 6 ft. and up Belt Drive with 3 Step Cone or All Geared 9 Speed Drive Head for 2 H.P. Motor

16"x6' Weight 2000 lbs. - - - \$575.00 18"x8' Weight 2300 lbs. - - 635.00

### SMALL INVESTMENT. LOW COST OF UP-KEEP.

Simplicity, Accuracy, Ease of Operation, Rapid Production

Write for Descriptive Circular

The Rahn - Larmon Co. 2941 Spring Grove Ave., Cincinnati, O.

# PLANER FACTS!

Truth is, what you're looking for in a planer is more all around efficiency. Fact is, with the Cleveland will. ALL the facts will gladly be sent you for the Open Side Planer you get this greater all around efficiency PLUS the assurance that there is no finer planer made-compared with what standards you

# THE CLEVELAND PLANER COMPANY

3148 Superior Ave., Cleveland, Ohio

Folder

The Open Side Planer with the Column Base Cast Integral with Its Closed Top Bed.

Installations 1100



EEPING your cutting tools in service twice as long is only a matter of proper grinding. Oesterlein Grinders properly grind cutting tools through the use of a cup-shared wheel, which grinds a straight-line clearance that results in a solid-backed cutting edge. Such an edge lasts much longer than an undercut edge.

grinding.

An outstanding feature of this machine is the case with which the cup-shaped wheel may be applied to any type of cutting tool.

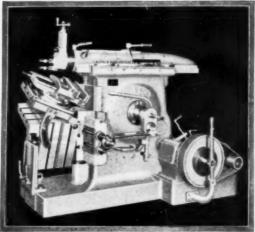
Rigidconstruction—all bearings and wearing surfaces protected from dust
—automatic lubrication—dual control—two rates of table traverse—
quick setup on all types of cutters—these are a few of the features
which make the Oesterlein Grinder the ideal grinder for your tool room.

Our new illustrated booklet is yours for the asking

The Oesterlein Machine Company, Cincinnati, Ohio



### **Steptoe Shapers**



Texrope Motor Drive-Guards not shown

### Centralized Control

NE of the most important features of the STEPTOE Shaper is its Centralized Control. All levers for starting, stopping, speed control, feed changes and ram and stroke adjustment are easily reached by the operator without leaving his working position. Feed changes can be made while machine is operating.

### Timken Bearings Used Throughout

STEPTOES are Timken Bearing equipped to provide the thriftiest possible operation in matters of power, lubricating and upkeep charges, and to assure you of the highest possible efficiency and accurate long-lived service.

These are but a few STEPTOE Features—Send for the Illustrated Catalog which gives complete details

### Western Machine Tool Works Holland, Michigan, U. S. A.

### Type AM "Standard" Spot Welder



### Welders of all kinds for all purposes

The Lenney Machine & Manufacturing Company, Inc. Warren, Ohio

Manufacturers of STANDARD Butt, Spot, Seam and Special Welders

### A 60,000 r. p. m. GRINDER

that reduces lapping to precision grinding



### C-2, 60,000 R. P. M. Pneumatic Turbine

This 60,000 r. p. m. grinder with tool post holder is also mounted to internal machines. It has the proper speed to give wheels of very small diameter their maximum cutting capacity and produces work of extreme accuracy. Slow lapping operations are often eliminated by the exceptional trueness and accuracy of this unit.

Onsrud Pneumatic Turbines constitute the Ideal High Speed Drive—their principle involves no other wearing parts but bearings. These are kept cold by the exhaust air expanding within the turbine, which contributes to their unusually long life. The construction of the unit is a natural protection against dust and grit entering the bearings.

Onstud Pneumatic Turbines are built in sizes having speeds from 15,000 to 60,000 r. p. m. They have a wide range of utility and in addition to being used as grinders, have solved many grinding, buffing and polishing problems. Write for bulletins.

Onsrud Machine Works, Inc. 3906 Palmer St., Chicago, Ill.

# A Combination GRINDER

WITH A MULTITUDE OF USES --



2 H.P., 3 Phase, 220 or 440 volts. 1800 R.P.M. at 60 cycle. 40" C Rise Constant Duty. Nine motor feads are brought out in switch box for ready connection to either 220 or 440 volts. Diameter of spindle at wheel, 11/4". Equipped with 14"x2" grinding wheel. Net weight of Grinder, 167 pounds; 200 crated. Height 151/2", Width of base 91/2", Width of Guard 15". Net weight of Base, 46 pounds. Shipping weight, boxed 290 lbs., crated, 280 lbs. (Can be furnished in 110 or 220 volt D.C.)

A Sales Representation Is Open in a Few Localities

### STOODY COMPANY

MANUFACTURERS

WHITTIER, CALIFORNIA



we had only Clutches to sell (and the CONWAY is a splendid clutch) we would be out of business in a week. And yet ..... CONWAY CLUTCHES are all we make or have ever made. In fact, we have quite a time making enough of them.

you really knew WHAT we have for you in a CONWAY CLUTCH you'd be answering this ad by telegraph.

### THE CONWAY CLUTCH COMPANY

1541 Queen City Ave., Cincinnati, O.



The Modern

The Rite-Speed Electric is the most popular motorized Polishing Lathe on the market. It is the answer to the old problem of obtaining the desired and the right

speed. Power is transmitted from the motor to the spindle by

> means of multi-V belts, which require no belt tightener and will outwear any flat belt. It operates smoothly and noiselessly. It is simple in construction-efficient and productive in operation.

Write for descriptive bulletin.

### Spindle speed any speed desired

Also manufacturers of a complete line of Electric Grinders from 1/2 to 15 H.P. Belted Grinders and Belted Polishers in a complete range of sizes and styles. Write for descriptive literature.

There is a Hammond Dealer near you.



GRINDERS

Hammond Machinery BuildEs

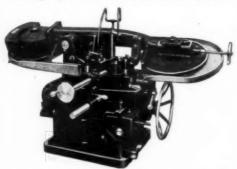
1614 Douglas Ave .

Kalamazoo, Michigan

HIGH GRADE MACHINERY SINCE '81

### Waste Gnaws into Profits

Crooked Cuts Waste Material Truing up Crooked Cuts Wastes Time



### The MILBAND

Cutting Off Machine

SPEED with ACCURACY

Get our Circular

The Avey Drilling Machine Co., Inc.

### GRAND RAPIDS No. 1 SURFACE GRINDER



A High Grade Hand Feed

### Precision Machine

that will do Your Small Grinding Jobs

Quicker-Better Cheaper

In many instances, a battery of these small machines can be used to better advantage than a smaller battery of larger automatics.

THE Grand Rapids No. 1 Surface Grinder handles economically the miscellaneous run of small surface grinding jobs that are continually coming up in the ordinary tool room. On many classes of work a competent operator will be able to exceed the production possibilities of anything in the automatic surface grinder line, except the latest type of hydraulic feed machines. Strongly built of the best materials and reasonably priced. Write for the Descriptive Bulletin.

Grinders for Every Purpose-Send for Catalog

### GAILILMHEYER AND LIVINGSTON CO.

342 Straight Ave. S. W., Grand Rapids, Mich.

# Threading 1200 pieces per Hour

These brass wing screws shown are being threaded on our



### Standard High Speed Tapping Machine



Let us show you what can be done on your work

Leland-Gifford Company. - Worcester, Mass., U.S.A.

BRANCHES BOSTON CHICAGO CLEVELAND

DETROIT NEW YORK PITTSBURGH ROCHESTER

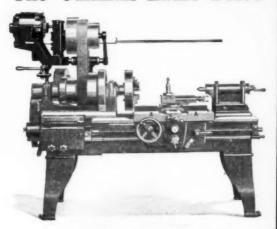
AGENTS Hendrie & Bolthoff

F. E. Satterlee Company Smith Booth Usher Co., Herberts-Moore Machinery Co., San Francisco F. F. Barber Machinery Co.

Minneapolis Las Angeles

LELAND GIFFORD

### The Cullman Lathe Drive



### A Motor Drive Unit with Belt Drive Smoothness

Motorize and Modernize Your Cone Pulley Lathes with the Cullman Lathe Drive. Quickly and Easily Attached to Lathes; Only Four Bolt Holes Needed. No Other Alteration on Lathes.

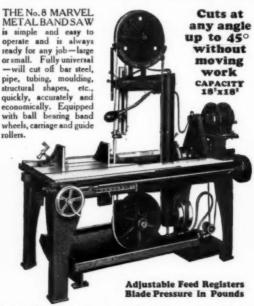
Made in 1, 2. 3, and 5 horsepower sizes for Lathes from 14 to 36 inches.

Send for Information

# CULLMAN WHEEL CO. 1359 Altgeld Street. Chicago, Ill.

SPROCKETS-SPEED REDUCERS-LATHE DRIVES

# MARVEL No. 8 Metal BAND SAW



The No. 8 Marvel Band Saw is a standard tool in hundreds of the best shops. Cuts off square or any angle, right or left, ito 45°. Has large, roomy bed or work table, three cutting speeds and quick-acting vise.

Write Today for Complete Details and Prices

# ARMSTRONG - BLUM 341 N. Francisco Ave.,

# MARVEL No. 6-A Automatic

THIS New Heavy Duty, Automatic High Speed Hack Saw has already demonstrated its great usefulness in many shops. On production work it will replace from six to eight ordinary hack saws, making possible a great saving in time, floor space, labor and expenses. Fully automatic—produces duplicate pieces at high speed. Feeds bars to any length from ½ in. to 26 in. and will cut 4 sq. in. per minute,

floor to floor, in mild steel and 2 sq. in. per minute in annealed high speed steel. Send for complete specifications and prices.

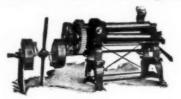
Capacity 6"x6"



MANUFACTURING CO. CHICAGO, ILLINOIS

# BELOIT

Punches—Shears—Bending Rolls



### Initial Type

### Sheet and Plate Bending Rolls

These Bending Rolls are built to fill the demand for strong, efficient and quick acting rolls for forming sheets and plates into cylindrical shapes. Adapted to the requirements of sheet metal and light plate working parts, and indispensable in any plant having a metal working department.

The modern design of this type makes it possible for the operator to curve plates completely to the edge, thus getting away from the undesirable flat near the edge of the sheet.

Strong, compact, easy to operate, conservatively rated and amply back geared to require the minimum of power.

Made in Initial Type, as shown above, or in Pyramid Type. We also make various types and styles of Punches and Shears. Write for complete descriptions.

### Hendley & Whittemore Co.

100 S. State St., BELOIT, WIS.

PUNCHES-SHEARS-BENDING ROLLS



6,000 B.P.M.

(for delivery January 1st)

( Blows Per Minute ) Air Pressure, 60 to 120 fb.

Chipping light cuts at the rate of 6,000 B. P. M. (blows per minute), it walks right through steel, stone, soft metals and wood-\$25.00 complete.

Here it is - another remarkable Kipp tool for replacing slow hand work -the Kipp Air Chippet, small, speedy and easy to operate - a companion tool to those popular Kipp Air Grinders.

With pistol grip and pistol body, it fits in the palm of the hand. How it does chip metal-it chips to the mark and stops at the mark. The operator's close control of the work prevents the annoying and often disastrous hammer and hand chisel slip or "ealves arc." The design of the Kipp Air Chipper eliminates vibration in the grip hand. Kipp chisels, held in place by a spring clamp, have pentagon shanks and may be inserted with any of the five sides in the upward position. The chipper will also operate in any position.

Deliveries of these tools will begin January 1st, 1931. They are priced at \$25.00 complete with one chisel, hose and hose connections. They will be shipped subject to ten day's free trial to any firm with a satisfactory credit rating.

### MADISON-KIPP CORPORATION

Manufacturers of Air Grinders, Air Chippers, Fresh Oil Systems, Mechanical Lubricators, Die Casting Machines, Die Casting Dies.

the Smallest, Fastest, Handiest Tools are Kipp Tools

### ORDER BLANK

MADISON-KIPP CORPORATION. 217 Waubesa Street, Madison, Wis.

Send Kipp Air Chipper at \$25.00, shipment beginning January first, net 30 days, postpaid. If it is not satisfactory, we will return invoice and tool on or before the 10th day after date of invoice. (Note: If you prefer to use your regular order form, please attach this coupon to it and copy the return arrangement on your order for a complete record.)

Ship to State Address Signed City Title

### Handles a Large Variety of Drill Problems



# WHIRLWIND Horizontal Drilling Machines

DESIGNED by production engineers, The WHIRLWIND meets the demand for an inexpensive drilling machine capable of increasing production while lowering costs. The horizontal construction makes quick loading possible and prevents drill cuttings from loading up on the drill bushing. Automatic ejection of finished work also saves time.

### Substantially Built and Fully Guaranteed

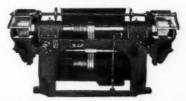
THE WHIRLWIND drill spindle runs on two oversize standard make ball bearings. It has four speeds—2,000, 4,000, 7,000 and 12,000 to 100%, cut operating expense to the bone and costs so little that it soon pays for itself—surely such a machine merits your attention.

Write Us Today for Complete Details

# WHIRLWIND PRODUCTS CO. 1737 Ludlow Ave., Indianapolis, Ind.

# STANBARD

No. 50 HIGH SPEED BALL BEARING SNAGGING GRINDERS



General Electric 40° ball-bearing motor and push button control. For use with Bakelite wheels operating 9000 S. F. P. M. Dayton "V" cog belts and Positive lock washers. Spindle 48 nickel steel.



Horse-	WHEELS			No. of	
Power	Dia.	Face	Hole	"V" Belta	
7½ 10 15	20° 24°	2" to 4" 2" to 4"	10° or 12° 10° or 12°	3	
15	30"	2" to 4"	10° or 12°	4	

Specifications on request

The Standard Electrical Tool Co.

Established 1912

1952 W. 8th St., Cincinnati, Ohio

# "Straight Line" Machine Vises



Swivels 180º Either in a Horizontal or Vertical Plane. STRONG-DURABLE-ACCURATE

### Made in Four Sizes

Ordered repeatedly by leading machine tool users for accurate heavy duty milling. Interchangeable parts.

### Adjustable Dial Index Center



With work dogged between centers, and latch pin in, the dial can be turned to bring work in position where wanted as to relation with machine cutter or emery wheel, then bound to start indexing from such ecting. Regular dial is drilled for three and four stations. Can be used for re-cutting or grinding flutes in taps and reamers or teeth in cutters.

### Also Manufacturers Of

Double end horizontal drills, milling machines and attachments, dividing heads, index centers, single and multiple spindle, hand screw machines, cutter grinders, screw slotters, hand lathes, collet chucks, oval chucks, rotary tables, hex-square milling fixtures.

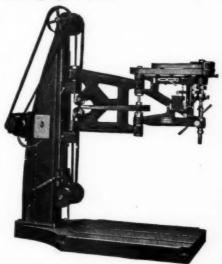
WRITE FOR CATALOG

### JOHN B. STEVENS INC.

306 Hudson Street,

NEW YORK CITY

THE HAMMOND AUTOMATIC Tapping Machines are designed to rapidly and efficiently perform drilling, tapping, stud, nut and screw driving operations.



Drilling radius 4' 0"
Capacity ¾" drills, %" taps, ½" studs

Write for full information

The Hammond Manufacturing Co. 7808 Kinsman Road, Cleveland, Ohio



These feeds are made in six models, with or without built-in straightener for light or heavy stocks, to meet all conditions.

### Fast Accurate Economical

NOC-OUT FEEDS

Why use slow, costy hand feed methods when the NOC-OUT Reversible Feed offers you the many advantages of automatic feeding? It keeps production at a steady level, assures maximum output of each press—by eliminating the human element and its costly delays.

Automatically feeds any stock from coils in lengths of from 0 to 30 inches per stroke of press. Mounts on bolster plate, either right side, left side or front, requires no alteration of press. Feeds from right to left, left to right, or front to back as conditions may require.

Write TODAY for a copy of Bulletin "H" describing the various NOC-OUT Models and Our Free Trial Offer.

### Wittek Mfg. Co.

4309 W. 24th Place

Dept. "H" CHICAGO, ILL.





### A Single Spindle Footburt Sipp Sensitive Drill

Made in three sizes of single and multiple spindle models

### More holes with this machine

Why? Because you can change speeds in two seconds or belts in ten seconds—because the automatic idlers keep the belt pulling to capacity at all times—because the full ball bearing equipment and accurate machining gives a smooth, fast cut.

Write for No. 650 Folders

The Foote-Burt Company, Cleveland, O.

FOOTBURT

# Etchograph



### For Speed in Marking Tools or Parts

use the ETCHOGRAPH, the original electric marker. No matter what the material, be it iron, steel, steelite, just connect the machine to the nearest light socket and write as with a pencil. No fuss—no acids—and the six stages of heat—an exclusive feature —enable you to securesix variations is the size of marking.

Write for descriptive folder, stating power available.

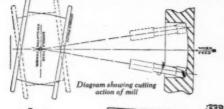
William Brewster Company
50 Church St., New York

# SUPERIOR Slot Milling Machine

Maximum Capacity Slots 3/8 in. wide 21/4 in. long

THIS MACHINE is designed for milling slots accurately and rapidling with a two lip end mill, by swinging the mill in an arc of a circle while it is revolving. The swinging of the mill is controlled by an adjustable throw crank. Table carrying work is fed automatically and the rate can be varied as required. Equipped with ball bearing spindle. Table is 6½ wide and 9½ long over oil channels; working surface 3½ wide, 7 long. Travel, 4 Tee slot 5% wide.

Send for Descriptive Bulletin with Diagrams showing various slotting operations and cutting time





Material-Machine Steel
Time 3 minutes



Material-Machine Steel Time 34 minutes

Superior Machine & Engineering Co.
1920 Ferry Park, Detroit, Mich.

# Pedrick Lathe Boring Bars



There are many times when you could profitably use one of your lathes for boring—if you only had the proper appliances at hand.

We can equip you for such work with one of our Lathe Boring Bars. They are made in diameters from 2½ to 6 and various lengths, with a large assortment of cutterheads to meet miscellaneous requirements.

The lathe provides the power, and each bar has a two-change constant feed, hand-controlled or automatic. The bar is rigidly held and is easily taken down and reset without changing the alignment.

Put your boring problems up to us. We have all kinds of new boring machines, from our Standard Portable Cylinder Boring Bar to our new Floor Boring Machines.

### Pedrick Tool & Machine Co.

3644 N. Lawrence St., Philadelphia, Pa.

Builders of Portable Cylinder Boring Bars, Crank Pin Turners, Portable Millers, Pipe Benders, etc.



# Yoke Vise Jaws Won't Mar Nickel

No rags—or fumbling with lead or copper clamps when nickel pipe is handled with a RIBEID Yoke Vise.
The new specially designed jaws grip and hold—without leaving burr or mar on plated pipe.

Every Plan Vise is powerfully built of certified malleable with jaws of finest quality tool steel more than equal to the toughest dayatter-day use. Vise stands are really portable as well as adjustable to any height, and have convenient trays for tools and oil can. Benders

and pipe supports are regular equipment on all types.

There's a PID Pipe Vise for every purpose. Chain and yoke types in bench, stand, post and kit patterns.

You can buy the new nomar jaws for your old

Ask your Jobber, too, about RIDDID Wrenches, Pipe Cutters, and Die Stock.

The Ridge Tool Company Dept BB, Elyria, Ohio



# POLISHING COSTS Cut in Half



Change band in 30 seconds without removing wheel from spindle.

Quick - As - Wink Cushion Abrasive Wheels make high speed polishing safer — do better work—and cut costs as much as 50%.

They are always round—of unchanging diameter—evenly balanced—and they save the investment and nuisance of continuously refacing rag buffs.

Any "grit" of abrasive band may be used—bands being changed in 30 seconds—without removing wheel from spindle.

Quick - As - Wink Cushion Abrasive Wheels are made in 3, 4, 6, 8 and 12 inch sizes special sizes to order. Abrasive cloth bands are furnished at nominal cost with or without clips.

#### GUARANTEE

The simplicity and strength of Quick - As - Wink Wheels

make their life practically unlimited. Every part is guaranteed against any defect in workmanship or material.

Cut cost now-write for prices

#### C. B. HUNT & SON

647 McKinley Ave.,

SALEM, OHIO

Also Makers of

QUICK-AS-WINK

COUPLINGS - VALVES - VALVE COUPLINGS



# The KELLERFLEX

The great assortment of Keller burs and rotary files in hundreds of different shapes, sizes and cuts, become indispensable for work on steel, bronze, aluminum, copper, rubber, horn, wood etc.

The KELLERFLEX machine with its various speeds enables a 1/8 bur to be used as effectively as a 10 bur. This machine is ideally suited for work in the foundry for cleaning, trimming of bronze and aluminum castings, as well as finishing of patterns.

The illustration shows the BK I machine being used on pattern work with bur attachment.

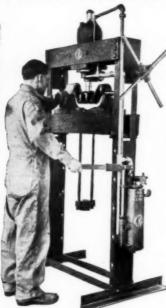
You will be surprised to learn the many ways that this machine can reduce your operating costs throughout your entire plant.

KELLER MECHANICAL ENGINEERING CORP. 58A Washington St., Brooklyn, N. Y.

Complete stock at Chicago and Brooklyn office

# KRW ARBOR PRESS NEW 1930 MODEL

Many New Improvements for Perfection of Operation and Convenience Gives You All Around Efficiency at Low Cost



A new double acting piston fills cylinder with oil as the ram is brought down by means of the hand wheel of unique design—sliding handles which pull out to the ends greatly increase the leverage.

Side members slotted to permit long bars to pass thru.

35 tons Capacity

Direct to You \$115.00

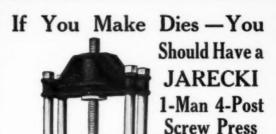
F. O. B. Factory

Complete with all attachments as shown

# K. R. WILSON

10-14 Lock St., BUFFALO, N. Y., U.S. A.

K. R. Wilson Shop Equipment Sales Co., Los Angeles, California Export Department: 126 Liberty St., New York City



They'll reduce your costs by increasing the efficiency of your toolmakers. One man can do as much as two on ordinary presses, due to the perfect alignment and the ease with which 80 tons pressure can be applied.

Also made in 25 ton size.

Send for Catalog.

Type BB

# Surface Grinder

A substantially built machine that is powerful, rigid and accurate. Equipped with graduated dials and non-vibrating wheel.

Details and Prices on request

JARECKI MACHINE AND TOOL CO.

GRAND RAPIDS, MICHIGAN

Taylor & Fenn Belt Driven

# No. 12 Spring Press



# UNIFORM BLOW SPRING PRESSES

Are made in three sizes, with either single or double action

Our No. 12 Belt Driven Spring Press, illustrated above, has a stroke of 3½ inches. The foot treadle operates a safety clutch attached to the flywheel, which automatically stops the machnie after each stroke regardless of whether the treadle is released or held down by the operator. The clutch can be adjusted for a continuous stroke if desired.

Descriptive circular gladly sent upon request

The Taylor & Fenn Co. Hartford, Conn., U.S. A.

42

# Norgren Regulating and Reducing Valve

For Air, Steam, Oil, Water and Non-Corrosive Gases



Contains exclusive NORGREN baffle plate construction—valve areas and clearances much greater than standard practice. All essential parts may be removed for cleaning or replacement when necessary without removing regulator from line.

Maximum volume of air--far greater than conventional valves of equivalent pipe size—without excessive pressure drop. Maximum production from tools and devices within desired pressure range.

Styles and sizes for various secondary pressures from 0 to 125 lbs., with inlet pressures up to 225 lbs.

### Norgren Sight Feed Automatic Air Line Lubricator



The NORGREN SIGHT FEED AUTO-MATIC AIR LINE LUBRICATOR not only provides a simple means of injecting lubricant into the air stream of pneumatically operated tools, but of even greater importance, the operator can SEE what amount of lubricant is entering the line.

It is adjustable to any demand by means of a needle valve and is entirely automatic in that it operates only when the air is in motion. There are no working parts.

You cannot forget to shut off the NORGREN Lubricator. You cannot forget to turn it on. It is easily filled and positive in action.

#### Manufactured by

CARL A. NORGREN CO., - Denver, Colorado

MANUFACTURERS OF Strainers, Blow-Valves, Blow-Guns, Air Chucks, Engine Cleaners, and Patented Couplings for Industrial, Acytelene, Service, Hi-Pressure Gresse and Metal Lined Paint Hose.

Eastern Distributor-J. N. Fauver Co., 31 Brady St., Detroit, Mich.

ARMSTRONG TOOL HOLDERS Are Used In Over 96% of the Machine Shops and Tool Rooms



### Take firm grips where other wrenches cannot reach



ARMSTRONG-VANADIUM Wrenches are ideal for machine setting ARMS I RONG. VANADIUM Wenches are ideal for machine setting and other work in close quarters for they are longer, lighter, and thinner than carbon steel wrenches. Their thin heads and lean tapering jaws will take a firm grip where other wrenches cannot reach. Their greater length gives added leverage; their lighter weight, greater handiness; their inherent quality—drop forged Chrome - Vanadium steel—added safety, for they will not break or spread.

They are especially popular for automatic screw machines where they save time and prevent accidents.



ARMSTRONG-VANADIUM Wrenches are finished in nickel over copper, with heads buffed bright. They are made in many patterns; come singly or in matched sets.

Write for Catalog A-V 27

Armstrong Bros. Tool Co.

"The Tool Holder People" 308 N. FRANCISCO AVE. CHICAGO, U.S. A.

# **HACK SAWS** BAND SAWS

Usefulness is increased ten times

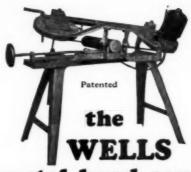


by reconditioning them on the Wardwell Hack and Band Saw Grinder, Model H. Saving in money, saving in time, and efficiency, together with mechanical perfection, assured by using this fool-proof Grinder.

Write for catalogue which gives complete infor-mation concerning the Wardwell Grinder



THE WARDWELL MFG. CO. 108 HAMILTON AVE., CLEVELAND, OHIO U. S. A.



### metal band saw

Incorporating the advantages of a hack saw with the cutting speed and economies of a band saw.

#### features:

Self contained and portable if desired-rapid cutting with extreme accuracy-long life blades, low blade expense. A wide range of usefulness-economical operation.

The WELLS SAW cuts soft and hard, ferrous and non-ferrous metals—thick and thin sections—pipe, tubing, strips, etc.

No change of blade or speed-cuts high carbon steel then soft brass rapidly and accurately.

Hundreds of duplicate pieces cut with a variation of less than .004 $^{\circ}$ .

Saves stock-width of cut less than 2/4°-blade .025° thick rigidly supported in six ball bearings.

Durable construction for hard service-strength without excess weight-ball bearing.

#### A Saw for Production, Maintenance and General Service

We wish you to have descriptive literature—your name and address please—today? Saws will be placed on trial.

Metal Saw Division

# WELLS MANUFACTURING CORP.

Exclusive territory being allotted-representatives and dealers interested, please write.

### **Expensive Hand Filing and Sawing**

# Are Economically Eliminated



Type

1-AP

with a
J. & B.
Filing
and
Sawing
Machine

For a small investment you can increase yourfiling and sawing operations as much as two and a half times. The J. & B. increases accuracy of work, in the hands of both veteran and apprentice.

The J. & B. soon pays for itself many times over — thus makingtheold method of filing and sawing by hand a rank extravagance.

Write for complete details NOW!

LaPorte Machine & Tool Co., Inc. LaPorte, Indiana

47

# **SAVE** \$ \$ \$ \$ \$

By Using The

# Luers Cutting · Off Tool

This modern tool is made in a great many sizes and types adapted for use on all makes of automatic screw machines, hand screw machines, and turret lathes.

The Luers pays for itself over and over again, and is being used by a great many outstanding concerns.

Will you try one in actual practice? No obligation whatever. Just designate the size and make of machine on which you wish to try our tool and the proper type will be sent to you.

Patented and Patents Pending In United States and Foreign Countries.

-LUERS INCORPORATED1022 Maple St., Detroit, Mich.

Save Time and Money in Many Ways with this Handy Tool



### Etches—Demagnetizes—Anneals

The LUMA is an instrument of general utility that is real shop economy, combining as it does in one compact, handy, portable tool, an electric pencil for marking hardened and ground steel, a thorough demagnetizer and a carbon point for light annealing and soldering.

It can be used for marking and demagnetizing small tools simultaneously. For demagnetizing tools or blocks too heavy to be moved, the LUMA itself can be carried and passed about the work as it weighs less than 20 pounds. Easy to use—just plug in the nearest light socket. You will be surprised at the savings it accomplishes for you.

Write for Complete Information and Details of Our Five Day Free Trial Offer

# Luma Electric Equipment Co.

Dept. H.

TOLEDO, OHIO

# On your 2-wheel Hand Trucks for Safety with Efficiency—use

# Safety Truck Brakes



Make the job of Hand Trucking Safe against Truck kick back—no more heels torn from shoes, feet pinched or worse.

Lower hand trucking cost by increasing leverage by as much as 40%.

Adjustable to fit any Truck-no measure-ments necessary.

Now used by over 10,000 companies.

PRICE: \$4.50 Each

or \$25.00 for six at Chicago-but

"The Safety Truck Brake pays for itself every week."



1281 Caxton Bldg.,

Chicago, Ill.

# Punch



Capacity 36" thru 34" Iron Weight, 81/2 lbs.

### No. 8 Roller Bearing Punch



Operating handles will not become disengaged.

CAPACITY-1/4" hole thru 1/4" iron. Weight, 16 lbs. Made in 3 sizes: Nos. 7, 71/2 and 8.

No. 20 Ball Bearing

# Punch



Capacity, 1/2-inch hole through 1/2-inch iron

Weight, Complete 20 lbs.

### No. 10 Ball Bearing Angle Iron Combination No. 455



Shears, Notches and Bends a 2-inch by 2-inch by 1/4-inch Angle Iron in One Minute Flat.

### No. 6 Slitting Shear Roller Bearing



Capacity % thickness. Throatless

Write for Catalog and Price List on Entire Line

Whitney Metal Tool Co. Rockford, Illinois 95 Forbes Street.

**Superior Quality and** 



#### The Square Base Shaper Vise

The Shaper Vise has graduated base and tongue in center to fit alot in table, and has holes for bolting down. In ordering this vise give size of slots in Shaper Table, also distance from center to center of slots.

Our compare the includes vises for orth reeses, many machines, suspers and tribuers.

Prices are net, f.o.b. Chicago. Write for illustrated folder today. Dealers wanted in unoccupied territory.

# J. E. Plunket Machine Co.

# Send for Illustrated Circulars

#### Specifications and List Prices

No.	Width	Jaws	Depth	Plain Vise		Swivel Vise	
4	Jawa	Open 21/4	Jaws	Weight	Price	Weight 26 lbs.	Price \$15.50
51/2	5%	21/4 31/4 51/4	11/4	50 lbs.	\$16.50	60 lbs.	\$20.00
	7%*	51/6"	2*	145 lbs.	\$33.00	160 lbs.	\$45.00
6	6"	8.	11/2"	Drill Pr	ess Vise	60 lbs.	\$20.00

We manufacture Multiple Spindle Index Heads for fluting and squaring Taps and Reamers, also Machine and Tool Work of all kinds.

MILLER & CROWNINGSHIELD, Greenfield, Mass.

# SHELDON MACHINE VISES



The swivel vise is the plain vise with the addition of a circular base graduated in degrees. It can be removed from the circular base and used as a plain vise if desired.

#### Specifications and Prices

No.	Width Jaws	Depth Jawa	Jawa Open	Plain Vise		Swivel Vise	
				Weight	Price	Weight	Price
3 4 6 8	31/4 41/4 61/4 81/4	136° 176° 216°	21/4 31/4 41/4 61/4	15 lbs. 30 lbs. 70 lbs. 160 lbs.	\$16.00 \$20.00 \$30,00 \$45.00	25 lbs. 45 lbs. 90 lbs. 225 lbs.	\$20.00 \$24.00 \$40.00 \$60.00

### SHELDON DRILL PRESS VISE



No.	Width of Jaws	Depth of Jawa	Jaws Open	Weight	Price
D-4	436.8	11/4*	4*	15 lbs.	\$12.00
D-4 D-6	612	134	6*	35 lbs.	\$18.00
D-9	91	2%*	98	70 lbs.	\$24.00

SHELDON MACHINE CO. 3250 Cottago, Grove Ave.,

# **MIKRON**



AUTOMATIC SMALL PRECISION Gear Hobbers Gear Cutters Pinion Hobbers Thread Millers Hob Grinders

Catalogs On Request

Triplex Machine Tool Corp.
50 Church St., New York City

# Greenerd Arbor Presses

Established 1883 Illustration shows

No. 5 Press



Write for our Catalog showing 64 different styles.

Edwin E. Bartlett Co.



# 12 SPINDLE SPEEDS

**Chrome Nickel Steel Gears** 



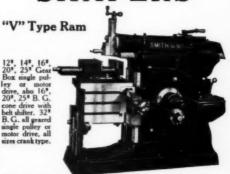
ASK FOR FURTHER DETAILS

Carroll & Jamieson Machine Tool Co. Batavia, Ohio

# SHAPERS

12", 14", 16", 20", 25" Gear Box single puldrive, also 16", 20", 25" B. G. cone drive with belt shifter. 32" B. G. all geared single pulley or motor drive, all

sizes crank type.



The Smith & Mills Co., Cincinnati, O., U.S.A.

# SIX Grinders In ONE



12'x36" Thompson Universal Grinder

Does every grinding operation required in the machine shop. Lowest cost work for plain, surface, die, cutter, edge and internal grinding. All standard machines equipped with auxiliary independent coarse cross feed for surface grinding.

Let us send you the Illustrated Booklet today!

The Thompson Grinder Company 1534 West Main St., 2-2 Springfield, Ohio

## ST. LOUIS GRINDERS



with

#### Self-Contained Countershafts

are most adaptable in crowded shops. They stand out of the way under line shafts, and as the countershaft is built into the machine, require but little labor to install. The short high speed drive belt eliminates a great deal of vibration and the grinder will operate longer with less maintenance than otherwise,

Let Us Quote Your Requirements

#### CUTTER MACHINE COMPANY

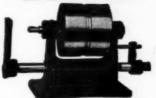
Successors to St. Louis Machine Tool Co.

3723 Commonwealth Ave.,

St. Louis, Mo. - Manufacturers of -

St. Louis, Crescent and Western Grinders, Etc.

# BURKE



# Light Tapping at Light Cost

This little machine has a mighty wide capacity—and plenty of speed. Except for the feed and removing of the work it's automatic, and equally efficient on tapping, rearning, burring, countersinking and similar operations. The work is notable for the almost total absence of tap breakage, and the thread is never stripped. A popular machine, economical and dependable on all work. Prices and destails on request.

The Burke Machine Tool Co., 297 E. 16th St., Conneaut, Ohio



# SPEEDY KEYSEATING

# The DAVIS Keyseater

is profitably used on quantity production of standard parts— yet it is so versatile and lends itself to such quick set-ups, that it is indispensable for the mixed runs of every day job work. Pays for itself quickly by economically cutting keyways, oil-slotting and grooving pulleys, gear blanks, bell cranks, crank handles, etc.

Table of cutting time tells the story. Send for your every

Davis Keyseater Company
155 1/2 Mill St., Rochester, N. Y., U. S. A.



Does this cutting time on

3" STOCK interest you?

If so, ask for catalog on our Taylor

ROTARY CUTTING-OFF MACHINE

GEORGE SCHERR CO. 142 W. Liberty St., New York

# A NEW POWER SAW RACINE HYDRAULIC SHEARCUT



Positive, hydraulic feed for large size atock. Capacity 9\*29\*. Feed, lift and clutch are all hydraulic. Cutting rate in 9° cold rolled 15 to 20 minutes. This machine is new in every way and offers outstanding advantages on production work.

Write for complete information today.

Racine Tool & Machine Company
1754 State Street, Racine, Wisconsin

# PEERLESS HIGH SPEED METAL SAWING MACHINES



In addition to being fast, accurate production machines for all classes of cutting-off work, they are capable of doing a wide range of other work such as blocking out jobs and sawing into desired shapes of die block steel, high speed steel, etc. at very great savings, Made in 3 sizes, 6"x6", 9"x9", 13"x13". 3 speed and arrangement for motor are regular equipment.

Write for Complete Information

Peerless Machine Co.
1615 Racine St.,
RACINE, WIS., U. S. A.
New York Office: 15 Warren St.

# LIBERT High Speed SHEAR

# NEW!

The LIBERT Shear guarantees rapid, accurate cutting of regular or irrergular shapes. Capacity from thinnest shim to 10 gauge (%4") metal, as fast as operator can feed. Foot control leaves both hands free to guide work. Edges are true and square and so smooth no file finishing is needed. Inside of plates cut as easily a outside—you can split a scribed line.

Write for Circular



LIBERT MACHINE CO., Green Bay, Wis.

## Abolish Expensive Hand Finishing



### Simplex-M Abrasive Band Grinder

This Grinder accelerates production and cuts costs. Hand emerying or filing operations are antiquated in comparison. The use of this new modern machine assures straight grain finishes with sharp edges. Details of this and other styles and sizes on request.

WALLS SALES CORP., 96 Warren Street NEW YORK



Write for Circular

PEERLESS SURFACING MACHINE CO., Inc. TROY, N. Y. Production Grinding

at Low Cost

Use PORTER-CABLE Type D-2 Disc Crinders for removing burns and excess metal. These grinders are sturdy, yet inexpensive, and can be conveniently moved about the plant. Motor driven from any light or power line.

Let us show you how others are cutting costs and increasing production with PORTER-CABLE Grinders. Write.

Porter-Cable-Hutchinson Corporation

Salina St., Syracuse, N. Y.



# PORTER-CABLE GRINDERS

# U. S. MULTIPLE SPINDLE Drill Heads



Made regularly with 2 to 6 adjustable spindles, to drill in any pattern. Special heads to order.

Also made with fixed spindles to fit your work.

Drills two or more holes with the same speeds and feeds that are used for drilling one.

Send us a layout of your work and we'll help to reduce your costs

The United States Drill Head Co., CINCINNATI, O. Michigan Agents-National Sales Engineering Corp., Detroit, Mich.

# The VIM Bench Machine



Type "C" for Screw Driving and Nut Setting

Operated by foot pedal, leaving both hands free for adjusting work in hand. It is especially designed for female help. Throat or clearance of work in 6°. Screws and nuts can be driven at high speed—2000 R. P. M. bit speed—if desired. We manu-

-if desired. We manufacture five different types, for all purposes of screw driving and nut

setting.

Send for circulars describing these tools

# VIM ELECTRIC TOOL CO.

# The Spirit Of the Times



is reflected in the speed and stamina of Rockford High Duty Punch Presses. \*

They are built to produce and maintain Hi-Production—and they do it.

Wide range of sizes and types.

Write today for new catalog

Rockford Iron Works



### For Your RIVETING

Linley Rotary

### RIVET SPINNERS

Cover a wide field of riveting. Simple in design but— Rigid and powerful. Made in 15 Models.

Get the full details before buying

WE ALSO MANUFACTURE

EQUIPMENT FOR ROTARY RIVET SPINNING MACHINES

SEND FOR DESCRIPTIVE FOLDER

Linley Brothers Co., 579 Fairfield Ave., Bridgeport, Conn.



# **Atlas Arbor Presses**

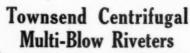
For All Forcing Operations

Illustration shows our No. 55 Power Drive Press, which is adaptable for fast production work and capable of supplying ten tons pressure.

Write for our Bulletinshowing 30 different sizes

### Atlas Press Co.

Department B, Kalamazoo, Michigan



THE ONLY MACHINE THAT IMITATES HAND RIVETING IN EVERY WAY.

NUMEROUS TYPES FOR ALL KINDS OF WORK.

Round and Flat heads, hollow and cheek rivets from .008" to 5/16" without distortion or breaking of fragile material. In places inaccessible by any other method.

### H. P. Townsend Mfg. Co. Hartford, Conn.

Foreign Representatives:
G. H. Alexander Machinery Ltd., Birmingham, England
Andrews & George Co., Tokyo, Japan
Fenwick Frares, Paris, France

# Canton Pedestal and Bench Pneumatic Riveters

Are fast and powerful. 5000 blows in one minute means real speed.

No cams, rubber, leather or wood parts in these machines. That is why maintenance is so much lower.

The advancing inner cylinder is an automatic adjustment for rivets of different length.

We also build a complete line of Pneumatic Chipping and Calking Hammers

Canton Pneumatic Co.



# **HOISTS**

Complete with Push Trolley and Collectors

1-Ton Capacity - Price \$300.00 2-Ton Capacity - Price \$450.00

We are also Manufacturers of Overhead Traveling Cranes from 1-ton to 10-tons.

Send for Detailed Specifications

Victor R. Browning & Co., Inc. 1320 East 222nd St., Cleveland, Ohio

# Grant Rotary Rivet Spinner



One rivet per second.
Heads highly polished.
No hammer or tool marks.
The work is always uniform.
As tight or loose as desired.
Works in hard-to-get-at places.
It's easily operated by cheap help.
A boy or girl can manipulate it.
And—it's noiseless in operation.

Write today for Catalog, showing several styles. Also send us samples of your work for riveting; we will return them with close estimate of cost.

The Grant Mfg. & Machine Co. C. E. Station, Bridgeport, Conn.

# Something to Move?-



Heavy? Awkward? Hard to Get At? That's when you need—and appreciate—the

"CANTON" Portable Crane, Hoist and Truck

It will reach into otherwise inaccessible places, pick up any bulky, unwieldy object weighing up to 6000 lbs. with ease, and transport it from one end of the shop to the other. One more can operate it—no need to call 6 to 10 men from their work to risk torn ligaments. Safety Friction Load Brake can be added to new or old "Cantons" at small extra cost.

The several sizes are shown in Booklet E-8

CANTON FOUNDRY & MACHINE CO., Canton, Ohio

New York Office: Carnegie Hall, 154 West 57th Street

# We Specialize In Hollow Boring

### If You Use Hollow Bored Forgings

A quotation from us will show the way to greater economy, efficiency and service. We make Lathe Spindles, Rams, Clutch Shafts, Piston Rods and similar parts—to your specifications. And you can be sure of uniform quality, accuracy and fair prices—to say nothing of prompt delivery! Why not prove it with a trial order?

Send Blueprints for Estimates

AMERICAN HOLLOW BORING CO.

# Bench Profiling Machine with Built-In Pump and Oil Reservoir in Base

RiGIDLY built and properly balanced for all recess work up to its capacity. Cutter spindle covers an area of 134x4, has vertical movement of 134. Unexcelled for producing duplicate recesses in blocks or plates such as die blanks, gun and revolver plates, etc. Cutter spindle furnished for cutting master plates.

Write for Complete Details

# THE WADE TOOL CO.

49-59 River St. WALTHAM, MASS.



# A NEW CAD September 1,1930



# The CAD U BIG BRUTE Machine Shop Clamp

Made for your big boring mills and planers that require  $\frac{7}{8}$  —1"—1 $\frac{1}{8}$ " bolts.

CAST STEEL
Good For
10 to 15 Tons Safe Load
8"-10"-12"-16" Long

Ask for CAD Circular A-51

STANDARD SHOP EQUIPMENT CO., INC. Set-up appliances for machine tools 8135 Tinicum Ave., Philadelphia, Pa.

# =FASTER=

# with the ECONOMY Type "P

Semi-Automatic Pointing Machine

Pointing of bolts, studs or rods becomes entirely automatic with this new Economy machine except for inserting and removing of blanks. No separate operation is required to bring the pointing head against the bolt.

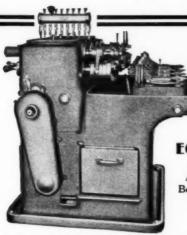
Pieces are gripped on the round, pointed, and released automatically at rates from 1500 to 2500 pieces per hour. Will handle work from ¼\* to ¾\* in diameter, 5½\* or more in length.

Write for full details

No Foot Levers

1500-2500 pieces per hour





n

### **ECONOMY**

4-Spindle Automatic Bolt Threader

#### SPEEDIER BOLT THREADING

Four spindles, operating alternately, make possible the high production records which have been set with this Economy machine. Accurate timing of the spindle movements allow just sufficient time for operator to remove threaded piece and insert blank.

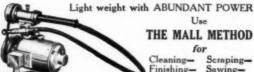
Threads bolts, studs or rods, cutting any standard length of thread. Handles diameters from  $\frac{1}{4}$ ° to  $\frac{1}{4}$ ° and lengths of 6° or longer.

Write for ECONOMY catalog giving full details of this and other similarly-cost-cutting machines.



Mall

## HEAVY DUTY-HIGH SPEED Die Sinking Machines



Use

### THE MALL METHOD

for Cleaning- Scraping-Finishing- Sawing-Drilling-

Filing-

Speed ranges 300 to 21,000 r. p. m.

Detailed Catalog on Request

Mall Tool Company, 7740 So. Chicago Ave., Chicago, Illinois

1/4 H. P.-Type RF-M4



It Pays To Buy

### FLEXIBLE SHAFT MACHINE

Type RF-M4

for

### Die and Tool Makers

Are giving excellent results in hundreds of plants

48 PAGE CATALOG **UPON REQUEST** Machines 1/4" to 2 H. P.

Manufactured By

5001-5009 N. Lincoln St., **CHICAGO** 



# HAVE YOU RECEIVED ? HASKINS NEW CATALOG

This 48-page catalog on Haskins Flexible Shaft Machinery should be in every machine shop. Send coupon today for your copy



Speeds 660 to 12000 R.P.M.

Made in various sizes

and types to meet your requirements.

Sturdy construction reduces vibration to a minimum; assures efficient operation.

# R.G.HASKINS COMPANY ... Portable Flexible Shaft Machinery ...

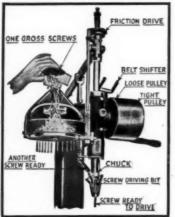
4654 W. Fulton St.,

Chicago, Illinois

Della I manilla I ten Catalog	
Name	***************************************
Address.	
City	State

# THE MAGAZINE FEED

Lowers Screw Driving Costs



Showing Magazine Feed of the Reynolds Automatic

65 to 85% and Does Better, More Uniform Work in LESS Time

THE REYNOLDS AUTOMATIC SCREW DRIVING MACHINE with magazine feed replaces hand methods with labor, time and cost savings ranging from 65 to 65%. Operation is extremely simple just dump a gross of screws into the hopper, press a foot lever, and the screw is driven to any required depth in an instant. Will drive between 10,000 to 20,000 screws per day and with average use usually pays for itself within three months.

Drop us a line, telling dimensions over all of your work, length and gauge of screws used, and we'll send figures showing the savings you should effect with a REYNOLDS

THE REYNOLDS MACHINE COMPANY DEPT. H. H. MASSILLON, OHIO

"THE MODERN WAY TO DRIVE SCREWS"







#### CAN YOU USE THIS EXPERIENCE?

Through our research and experiments with Hydraulic Machine Tool Equipment, we have developed special machines to bore and hone cylinders.

This service is now available to companies requiring cylinders for Hydraulic Pumps, Diesel Engine Liners, etc.

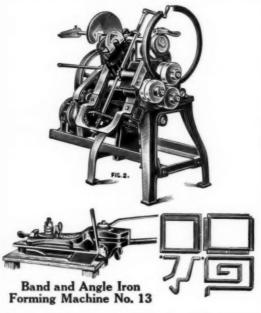
More than forty years building Machine Tools your guarantee for quality work.

Send us your prints for estimate

THE R. K. LEBLOND MACHINE TOOL CO

# **EXCELSIOR**

Circular Angle Bending Machine No. 14



Mfgrs. of Shearing and Punching Machines, Automatic Polishing and Buffing Machines.

Excelsior Tool & Machine Co. East St. Louis, Illinois

# **STECHER**

Automatic Turning, Drilling and Threading Machine



### For High Speed Production

THE Stecher Automatic Turning, Drilling and Threading. Machine is a high speed production tool used for machining brass and iron castings and drop forgings, and in performing second operations on screw machine products and many other parts. Fixtures of various designs may be attached to the face of the table, which can be mechanically, air or hydraulically operated. The operator has unobstructed view of the work and tools at all times, and is so positioned that eye and hands can readily keep time with work table.

Write Today for Illustrated Folder and Complete Details

THE CHARLES STECHER CO. 2452-58 N. Greenview Ave., Chicago, Ill.

# **Speed Reducers**

1/16 HP up to 200 HP

Any ratio you desire in standard size units.

Send for Catalog

We also manufacture a complete line of industrial gears.



The Horsburgh & Scott Co. 5112 Hamilton Ave., Cleveland, Ohio



ALL. TYPES Mass. ( Gears

MEDIUM and SMALL SIZES

Massachusetts Gear & Tool Co. 36 Nashua St. Wahurn Mass.

# GEARS

### In Stock-Immediate Delivery



Gears, speed reducers, sprockets, thrust bearings, flexible couplings, pulleys, etc. A complete line is carried in our Chicago stock. Can also quote on special gears of any kind. Send us your blue prints and inquiries.

Write for Catalog No. 70

# CHICAGO GEAR

WORKS CHICAGO, ILL.

STANDARDIZATION PAYS

# Universal Joints

Steel and Bronze



Send for Circular giving specifications and prices on complete line

Boston Gear Works Sales Co. North Quincy, Mass.

BOSTON NEW YORK PHILADELPHIA CLEVELAND CHICAGO

# BOSTON GEARS

# Analysis of Circulation of HITCHCOCK'S MACHINE TOOL BLUE BOOK By Dun and Bradstreet Ratings

(Corrected to September 1st, 1930)

To domestic concerns, and superintendents, works managers, production engineers, etc., in such concerns rated at-Exceeding \$1,000,000 1.937 \$500.000 to \$1,000,000 1.486 \$300,000 to \$ 500,000\_\_\_\_\_ 1.402 \$200,000 to \$ 300,000 1.306 \$125,000 to \$ 200,000 1,892 \$ 75.000 to \$ 125,000.... 1.827 \$ 50,000 to \$ 75,000 1.558 \$ 20,000 to \$ 50,000 3,190 \$ 10.000 to \$ 20,000 2.132 5.000 to \$ 10,000 1.604 TOTAL to Private Concerns of over \$5,000\_ 18,334 Steam and Street Railway Mechanical and Purchasing Officials, Government and Municipal Plants, Technical Schools, Selected Foreign Importers and Users, Etc.,\_\_\_\_ 2.990 TOTAL to Buyers of Known Responsibility \_\_ 21,324 \*Concerns quoted in Dun or Bradstreet, but without Capital Rating 2.232 Concerns not yet in either Dun or Bradstreet. which includes new industries..... 1.424 Concerns rated \$3,000 to \$5,000 489 Miscellaneous ..... 217 TOTAL CIRCULATION 25,686

<sup>\*</sup>This group includes a considerable number of large concerns, and some small ones of high credit, whose capital rating is not given by either of the commercial agencies.

## A Wide Range of Service

WE manufacture everything in gears from ½ at 36 in size, all metals and Bakelite. Another important feature is that prices are moderate, being kept down because of the large volume of business we do. Deliveries are prompt for we realize how important it is to have gears on time. Then, too, there's our free advisory service, a staff of experienced engineers, ready to assist you on any problem concerning gears. CROFOOT Service is yours to command.

Send Samples or Blue Prints for an Estimate

### Charles E. Crofoot Gear Corp.

70 Central St. South Easton, Mass.

CEARC DY



CROFOOT



### DESIGNED

Lower Your
Broach
Grinding Costs
--and It DOES!

### **COLONIAL Broach Sharpener**

XTREMELY simple and compact in design, the COLONIAL sharpens broaches in approximately one-third the time required by ordinary makeshift equipment—leaving large, expensive grinding machines free to do their regular work. Does a better job—grinds the difficult undercut easily, and increases the life of your broaches. A saving of TWO-THIRDS of your broach sharpening costs is worth investigating! Write Today for Complete Information.

### COLONIAL BROACH COMPANY

147 Jos. Campau Ave.,

Detroit, Mich.

# **Nicholson Expanding Mandrels**



Machine Shops can get along without tools like expanding mandrels and high speed drills, but they get out work much faster with them.

Write Us about Mandrels

W. H. Nicholson & Co. 117 Oregon St., Wilkes-Barre, Pa.

# When a Tap Breaks —That's Enough

Your loss will stop there if you have a handy WALTON TAP EXTRACTOR in your shop.

Simply insert the Fingers of this time saving device into the flutes of the broken tap, unscrew the Extractor with an ordinary tap wrench, and back the tap out. A WALTON obviates delays and operates so simply that an apprentice can handle it.

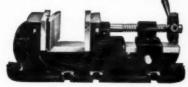
Made in three and four-flute styles.

Let us send you one for a sixty-day trial

The Walton Company
302 Pearl St., Hartford, Conn.

### Gem Drill Press Vise

With Automatic, Quick-Acting, Powerful Grip



Holds Irregular Pieces Firmly

The jaws are made of steel, hardened and ground, with horizontal and vertical "V" grooves. The independent swivel jaw holds taper and irregular work with a bull-dog grip. Its quick action, powerful grip and adaptability make it the most efficient vise on the market. Made in three sizes. Write today for folder, picturing its use in drilling and milling operations.

J. E. Martin Tool & Die Works, Springfield, O.

# Sigourney Sensitive Drills



### Plain or Ball Bearing Belt or Motor Drive

Sigourney Sensitive Drills are quality products, extremely sensitive, accurate and durable, with all parts interchangeable.

The illustration shows a Sigourney ball bearing, high speed drill press, made with one to four spindles, which operates up to 5000 R. P. M. The ball bearings are self-aligning, in double row.

Write for circulars and prices

Sigourney Tool Co. Hartford, Conn., U. S. A.

### E-Z THREAD DIAL

Thread cutting on engine lathes made easy, and at lower cost. Made in four sizes. Can be easily attached to all size lathes. A reliable device that will aid the operator in the work of cutting threads. With it threads can be cut close up to shoulders as easily as the ordinary

thread.



Eliminates stopping or reversing the lathe.

The many repeat orders received prove it is satisfactory after trial.

Can be shipped within two days after receipt of order.

Sent on thirty days' trial. Send for latest folder today.

JAMES M. COLVEN, 20 Wolffe Street, Yonkers, N. Y.

### STANDARDIZED

### LATHE TURRETS



STYLE "G"

Square head, for carrying four ordinary lathe 8 Styles
12 Sizes

For any make or size of Lathe old or new.

Ask for Circular No. 18

FAY & SCOTT DEXTER, MAINE

## **Cut Your Straightening Costs**



The arrangement of the Springfield makes it the ideal tool for straightening any length of rough or finished work—truing apprung tools—or testing and balancing came, crank shafts, etc. Placed on the bench it saves the operator's time by eliminating waste steps, and makes for quicker handling of the work.

Let us send you a folder illustrating its many uses

### The Springfield Machine Tool Company 633 West Southern Avenue, SPRINGFIELD, OHIO

We also manufacture Engine Lathes and Shapers

### The Anderson Ever-Ready

# **Balancing Ways**



Are extremely sensitive and require no leveling—no adjustments—no centers.

Made of quality materials in several sizes to balance everything that revolves up to 24000 lbs. weight. You will find Andersons always ready, always accurate, and lasting in their service.

"Swing"	20°	40*	60°	72*	96*	72*
Greatest distance bet. standards Capacity in lbs Approx. shipping weight Cade	20° 1000 45	30° 2000 90	30" 2000 150 Bis	66* 5000 350	88* 10000 650 Bes	20° 24000

Any of above can be furnished with longer shafts

Anderson Bros. Mfg. Co. 1915 Kishwaukee St., Rockford, Ill. T.H.L. Front Lever Bench Punch

Malleable iron body; working parts hardened. Steel shaft and plunger. Die cannot lose alignment with punch. All parts interchangeable. Built for hardest, toughest work. Weight 70 lbs.

#### PRICE \$40

Extra Punches, 20 cents each; extra dies, 30 cents.

Capacity 1/2" holes through 1/4" steel. 1/32" through 1/4" steel. Punches and dies in stock from 1/4" to 1/2".

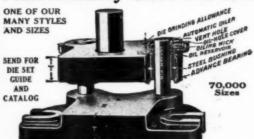
Immediate shipment from stock

### T. H. LEWTHWAITE MACHINE CO.

(Est. 1890) 311 E. 47th St., NEW YORK



# Automatically Oiled Die Sets



### E. A. BAUMBACH MFG. CO.

GENERAL OFFICE AND WORKS

1810 South Kilbourn Ave., CHICAGO, ILLINOIS

Sales and Engineering Offices-Principal Cities U. S. A. and Canada



### **Die Making Machines**

save an average of 50%

Dies, templets, experimental parts, gages and the like can be sawed, filed and lapped on the Oliver of Adrian Die Making Machine much easier, more accurately and in a fraction of the time ordinarily required for handwork.

We also manufacture a line of

Point Thinners.

Drillpointers.

Cutter Grinders.

Carboloy Tool

Send

for Bulletins

Oliver Instrument Company, ADRIAN, AICH.

# Standard Dial Indicator

Easy Reading—Long Lived— Simple—Accurate



Note the few parts, the sturdy construction and simplicity of this new "STANDARD" Indicator. Built of the finest materials, with large, easy-to-read figures of distinct graduation

- no shadows. The patent dust, grit and moisture proof cover fully protects the mechanism and insures long life.

Send for Catalog and Price List of the entire Standard Line

STANDARD GAGE COMPANY, INC.
Poughkeepsle, N. Y.

DETROIT CLEVELAND INDIANAPOLIS CHICAGO



THE SCHWERDTLE STAMP CO. BRIDGEPORT, CONN.

### Send Us Your Inquiries

We are always glad to forward a memo of any machinery or equipment for which you are in the market to all of our advertisers without charge.

### The Blank Form

enclosed in this book is for this free service, and you are invited to make use of it without any obligation. Or write out your needs on your own letterhead.

The Blue Book has been the means of bringing many buyers and sellers together, to their mutual profit and satisfaction.

### HITCHCOCK PUBLISHING CO.

508 S. Dearborn St., Chicago

### PRECISION LATHE CHUCKS

3-Jaw Universal Chucks and 4-Jaw Independent Chucks

Advantages offered by our latest improved Geared Scroll Chucks

The shell consists of one piece only. All moving parts are situated in the shell, none in the cover plate, which guarantees ideal, precise work. The recess is in the shell, thus insuring true running after dismanlling and assembling chuck.

Reinforced Pinions

The teeth of the pinions and circular rack are cut out of the solid in such a way that breakage is almost impossible.

Easy Cleaning and Oiling

After removing the cover plate all parts are open and easily accessible.

Write Us Today for Prices. Special Discount to Dealers.

SOLE DISTRIBUTORS:

MACHINERY SEGAL

809 W. Lake St.,

Chicago, Illinois

The New "PROCUNIER HIGH SPEED TAPPER

"Double-Cone" Cork Clutch and Automatic Reverse

for

High Speed Sensitive Tapping on your Drill Presses Capacity 1/2" Cast Iron; 7/16" Steel PRICE ONLY \$45.00

Don't hesitate to ask for a free trial

Procunier Safety Chuck Co. 14 S. Clinton St. Chicago, Ill.

# "D&W" Flat & Magnetic Chucks





Our Extensive Line covers a wide range. They save time and cut costs of holding iron and steel pieces. Glad to investigate and report on any problem you may have in connection with the use of Flat and Rotary Magnetic Chucks. Address

J. & H. Electric Co. 200 Richmond St., Providence, R. I.

### Keep Stock "HANDY" with the HANDIEST RACKS



It means a big saving in time and steps if you keep your bar stock, pipe and shafting piled on these racks, along-side the operator. Keeps stock neatly piled and assorted, making it instantly available. Tell at a glance how much of each size you have on hand. Just as ideal for storage purposes—utilize the out-of-the way corners in your shop.

We will gladly ship You a Set On Trial

Wm. S. Yohe Supply Co.

### ACME DOWEL PINS



Standard hardened and ground to within .0002" over listed sizes. Also carried oversize .001" for use in repair work, etc. Ask for Bulletin No. 551.

### ACME DRILL BUSHINGS

Bulletin No. 501 describes and illustrates the various types and standard sizes of ACME Drill Bushings. Special sizes made to your order.



Bulletins and special low prices sent upon request.

ACME INDUSTRIAL CO.
419 Carpenter St., Chicago, Ill.

New York Office and Stock, 173 Lafayette St., New York

# "Champion" Emery Wheel Dresser

Outlasts a Dozen Cheaper Dressers

The "Champion" is made by experts, for long life and the best service. The only dresser that runs in an oil bearing.

The most economical dresser you
can buy. Cutters are made
of the best grade of tool steel,
milled and heat-treated and tempered
-fully guaranteed. Get the complete
details on this cost saving tool.

Write for Catalog also describing Champion Tool Holders, Expanding Mandrels, Vises, Clamps, Shop Furniture, Etc.

The Western Tool & Mfg. Co. SPRINGFIELD, OHIO

# UTILITY-WIARD

Quick Change CHUCKS

(Improved)

For The

Rapid Changing of Tools While The Spindle Is Turning

Quick Accurate Powerful Dependable

The J. C. Glenzer Co.

6467 Epworth Blvd.,

DETROIT, MICH.

### Genesee Adjustable Hollow Mill



Write for Catalog

A Genesee Adjustable Hollow Mill can be made for every job.

Genesee Manufacturing Co., Inc. ROCHESTER, N. Y.



### HEXAGON HEAD STEEL CAP SCREWS

We manufacture Hexagon Head Cap Screws in both Upset (heat treated) and Milled products. Write for Bulletin giving specifications, liest prices and weights. Quotations on special work gladly given from sample or blue prints.

Also send for description of our Case Hardened Set Screws and Hexagon Nuts—semi-finished, slotted, plain and castle.

Style N C



Style N F Fine Thread

WESTERN SCREW - PRODUCTS CO. 2700 Sc. Main St., ST. LOUIS, MO., U. S. A.

SCREW MACHINE PRODUCTS OF ALL DESCRIPTIONS

# Steel Spacing Washers-

Made of a good grade of Cold Rolled Strip Steel, also known as Shim Steel



Other thicknesses up to 3.000" made to order, with keyways if so ordered.

Ask us to send samples; you'll like them

Detroit Stamping Company

# Proven Performance EDGEMONT CLUTCHES



Catalog "H" shows a completete list of pulleys, extended sleeves, and cut-off couplings. Send for it.

The Edgemont Machine Co., DAYTON OHIO



# Hartford Taper Gage

### Locates Inaccuracies Instantly

When turning tapers on end mills, profile cutters, twist drills, reamers, lathes, etc., accuracy is all important. The Hartford Taper Gage enables the workman to tell instantly whether a taper is rigit.

### Simple-Inexpensive-Reliable

Any inaccuracy down to .001\* can be instantly detected. Adjustable over a wide range—from No. 0 to No. 14 taper.

Write for Complete Details and Price

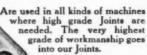
We Also Build Machinery on a Contract Basis And Design and Develop Special Automatic Machinery

Gears Cut To Order

Hartford Special Machinery Co.

285 Homestead Ave., Hartford, Conn.

# VANDERBEEK UNIVERSAL JOINTS





### We specialize on Joints

for instrument work and light drive as well as airplane use. Hundreds of thousands of Vanderbeek Universal Joints are in daily use.

Write for Prices and State Your Quantities

American Tool Works, Inc. 25 High St., Hartford, Conn., U. S. A.

### The Talk of The Industry

The new Roper Rotary Oil Pump for hydraulic mechanism—a thoroughly dependable direct-connected, high-pressure pump. Highly successful in hydraulic presses, hoists, stokers, machine tools; accumulator service and similar mechanism. Pressure up to 1000 pounds. Sizes and designs to meet individual requirements—can be built in as an integral part of any machine. Sturdy, efficient, economical—fully quaranteed.

Complete technical and performance details in Catalog No. 58H. Write for your copy today—no obligation. GEO. D. ROPER CORP.. Rockford, Ill.

PHILADELPHIA, CHICAGO, DALLAS, SAN FRANCISCO



Aircraft Bolts Western Scraw-Products Co., St. Louis, Mo.

Air Cylinders, Stationary and Rotating Hannifin Mfg. Co., 621 S. Kolmar Av., Chgo.

Arbors, Solid Nicholson & Co., W. H., Wilkes-Barre, Pa.

Auto-Gages For Dies Danly Machine Specialties, Inc., 2116 So., 52nd Ave., Chicage

Automatics National Acme Co., Cleveland, Obio

National Acms Co., Uls

Balancing Ways Anderson Bros. Mfg. Co., Rockford, III. Sundstrand Machine Tool Co., Rockford, III.

Ball Bearings
Souton Gear Works Sales Co., Norfolk
Downs, Mass.

Band Saw Machines, for Metal Armstrong-Blum Hig. Co., 341 N. Francisco City Machine & Tool Works, Dayton, Oble Forter-Cable-Butchinson Corp., Syracous. Bacton Tool & Machine Co., 1745 State Str., N., Wells Mig. Corp., Three Rivers, Mich.

Bar Cutters Buffalo Forge Co., Buffalo, N. T.

Bending Machines, Hand and Power Armstrong-Blum Mfg. Co., 341 N. Francisco Excelsior Tool & Mch. Co., E. St. Louis, III. Handley & Whittamore Co., Esisit, W. Lawthwalte Mche. Co., T. H. 311E. 47th., N. Y. Padrick Tool & Machine Co., Philadylan

Bending Halls Suffalo Forge Co., Suffalo, N. Y. Sendley & Whittemore Co., Selek, Wis.

Bolt and Nut Machinery Regionery Engineering Co., Willoughby, O. Foote-Burt Co., Cleveland, O.

Bering Bars Pedrick Tool & Machine Co., Philadelphia Bering Bars, Cylinder Pedrick Tool & Machine Co., Philadelphia

Boring, Drilling & Milling Machines Defiance Machine Co., Defiance, O. Ryerson & Son, Inc., J. T., Chicago, Ill.

Boring Machines, Horizontal

Aver Drilling Machine Co., Cincinnati Pedrick Tool & Machine Co., Philadelphia Brakes, Hand Truck

Fisher Equipt., 1381 Caxten Bidg., Chicago Brands, Burning Schwerdtle Stamp Co., Bridgenort, Cong.

Breach Sharpening Machines Colonial Tool Co., Inc., Detroit, Mich.

Broaches Colonial Tool Co., Inc., Detroit, Mich. Broaching Machine Work Colonial Tool Co., Inc., Detroit, Mich.

Breaching Tools
Colonial Tool Co., Inc., Detroit, Mich.

Buffers, Bench Type Cutter Machine Co., St. Louis, Mo. Hissey Wolf Machine Co., Cincinnati, Ohio U. S. Electrical Tool Co., Cincinnati, Ohio

Buffers, Combination Grinder Cutter Machine Co., St. Louis, Mo. Hissy-Wolf Machine Co., Cincinnati, Ohio U. S. Electrical Tool Co., Cincinnati, Ohio

Hulfers, Fleer Stand Cutter Machine Co., St. Louis, Me. Hissy-Wolf Machine Co., Cincinnati, Oblo U. S. Biectrical Tool Co., Cincinnati, Obic

Buffers, Portable Electric Hissy-Wolf Machine Co., Cincinnati, Ohio Vim Electric Tool Co., 149 Broadway, N. Y.

Buffing Wheels Hunt & Son, C. B., Salem, Ohlo

Bushings, Drill Acme Industrial Co., 419 N. Carpenter St., Chicago

Bushing Finishing Machines, Economy Engineering Co., Willoughby, O.

Calipers, Vernier Scherr Co., Geo., 144 Liberty St., New York Cap Screws, Hexagon Head

Western Screw-Products Co., St. Louis, Mo.
Center Grinders
U. S. Eiestrical Tool Co., Cincinnati, Ohio
Centering Mackines
Sundarand Machine Tool Co., Rockferd, III.

Sundatrand Machine Tool Co., Rockferd, III.

Chain Drives
Boston Gear Works Sales Co., Norfelk
Downs, Mass.
Culiman Wheel Co., 1359 Altgeld St., Chgo.

Culiman Wheel Co., 1389 Altgeld St., Chgo.

Chains, Silent and Roller
Culiman Wheel Co., 1389 Altgeld St., Chgo.

Chamfering Machines, Automatic Grant Mfg. & Mche. Co., Bridgeport, Conn.

Chaser Grinders National Acme Co., Cleveland, Ohio.

Chucking Machines
National Acme Co., Cleveland, Ohio
Springfield Machine Tool Co. Springfield, O.
Stavens Inc., John B., 398 Hudson Street,
New York

Chucks, Air Hannifin Mfg, Co., 621 S. Kolmar Av., Chgo.

Chucks, Automatic
Procunier Safety Chuck Co., 14 S. Clinton
St., Chicago

Chucks, Collet
Procunier Safety Chuck Co., 14 E. Clinton
St., Chicago

Chucks, Drill
Etteo Tool Co., Inc., 600 Johnson Ave.,
Brooklyn, N. Y.
Hartford Special Mehy. Co., Hartford, Conn.

Chucks, Drill and Tap Procunist Safety Chuck Co., 14 S. Clinton St., Chicago

Chucks, Lathe. Segal Mchy. Co., 809 W. Lake St., Chicago Stevens Inc., John B., 805 Hudsen Street, New York

Chucks, Magnetic J. & H. Electric Co., Providence, R. I.

Chucks, Quick Change Precunier Safety Chuck Co., 14 So. Clinton St., Chicago

Clamps, Die Danly Machine Specialties, Inc., 2316 So. 52nd Ave., Chicago

Clutches, Friction
Conway Clutch Co., Cincinnat, O.,
Edgemont Machine Co., Dayton, Ohlo
Joses Foundry & Machine Co., W., A.,
4450 W. Roosevett Road, Chicago

Cold Saws Burke Machine Tool Co., Conneaut, Ohio

Callets Wade Toel Co., Waitham, Mass.

Contract Work Wanted Burke Machine Tool Co., Conneaut, O. Counterbores and Spot Facers Gienzer Co., J. C., Detroit, Mich.

Couplings, Friction Clutch Conway Clutch Co., Cincinnati, O. Jones Foundry & Machine Co., W. A., 4450 W. Bionswitt Bload, Chicago

Couplings, Flexible
Jones Foundry & Machine Co., W. A.,
4450 W. Boosevelt Road, Chicage
Nicholson Co., W. H., Wilkes-Barre, Pa.

Couplings, Shaft
Jones Foundry & Machine Co., W. A., 4460
W. Roosevelt Road, Chicago
Nicholson Co., W. H., Wilkes-Barre, Fe.

Crases, Overhead Traveling Browning & Co., Inc., Victor H., Cleveland, Ohio

Cranes, Portable
Canton Foundry & Mobe. Co. Canton, Oble
Crank Pin Turning Machine
Pedrick Tool & Machine Co., Philadelphia

Cutters, Keyseating Davis Keyseater Co., Rochaster, N. Y.

Cutters, Milling Genesses Mfg. Co., Inc., Rechester, N. Y. Reed-Frentics Corp., Worcester, Mass.

Reed-Prentice Corp., Worcester, Mass.

Cutting-Off Machines
Scherr Co., Geo., 144 Liberty St., New York

Cutting-Off Tools
Lucra Incorporated, Detroit, Mich.

Cylinder Boring Machines, Portable Pedrick Tool & Machine Co., Philadelphia

Demagnetizers
J. & H. Electric Co., Providence, R. I.
Die Casting Machines
Madinon-Kipp Corporation, Madison, Wis.

Die Making Machines
Oliver Instrument Co., Adrian, Mich.

Dies, Automatic Self-Opening National Acme Co., Claveland, Ohio

Dies, Blank and Forming American T of Works, Inc., Hartford, Coun., Wade Tool Co., Waltham, Mass. Dies, Die Casting Madison-Kipp Corporation, Madison, Wis.

Die Sets
Baumbach Mfg. Co., E. A., 1812 So. Kilbourne Ave., Chicage
Danly Machine Speciaties, inc., 2116 So.
52nd Ave., Chicage

Die Sinking and Engraving Machines Keller Mech. Eng. Corp., 58A Washington St., Branklyu, N. Y.

Die Threaders, Automatic Townsend Mfg. Co., H. P., Hartford, Coan,

Dividing Heads Scherr Ca., Geo., 144 Liberty St., New York Stevens Inc., John B., 306 Hudson Street, New York

Drill Racks
Pacrises Machine Co., Racine, Wis.

Drilling Heads, Multiple Oesterlein Machine Co., Cincinnati, Ohio Stecher Co., Char., 2432 N. Greenview Av., United States Drill Head Co., Cincinnati

Drilling Machines, Automatic Bradford Machine Tool Co., Cincinneti, Ohio Stecher Co., Chau., 2462 N. Greenview Av., Chicago Townsend Mfg. Co., H. P., Hartford, Cons.

Drilling Machines, Bench Aver Drilling Machine Co., Cincinnati Hiesy-Wolf Machine Co., Cincinnati, O. Sigourney Teel Co., Hartferd, Conn. Stecher Co., Chan., 2452 N. Greenview Av., Taylor & Fenn Co., Hartford, Conn. Winterhelf Tool & Machine Co., Eikhart, Montariand

Drilling Machines, Herisonta I Stevens Inc., John B., 306 Hudeon Street, New York Whirlwind Products Co., Indianapolis, Ind.

Drilling Machines, Multiple Spindle Avey Drilling Machine Co., Cincinnati Foote-Burt Co., Cleveland, O. Sigourney Tool Co., Hartford, Conn. Taylor & Fenn Co., Hartford, Conn.

Drilling Machines, Portable Electric Hiser, Wolf Machine Co., Cincinnati, O. Mail Tool Co., 7730 S. Chleago Ave., Chicago Standard Electrical Tool Co., Cincinnati, O. Strand Co., N.A., 5001 N. Lincein St., Chigo Vim Klectric Tool Co., 149 Broadway, N. Vi Winterholf Tool & Machine Co., Ekhart, ind.

Drilling Machines, Post
Buffalo Forge Co., Buffalo, N. Y.
Hammond Mfg. Co., Cleveland, Ohlo.
Hisey-Wolf Machine Co., Cincinnati, Ohlo
U. B. Electrical Tool Co., Cincinnati, Ohlo

Drilling Machines, Radial
American Tool Works Co., Cincinnati, O.
Hammond Mrg Co., (Ideveland, Oble,
Hissp. Wolf Machine Ce., Cincinnati, O.
Ryrsson & Son, Inc., J. T., Chicage, III.
Taylor & Penn Ce., Hartford, Genn.
Weetern Miche. Tool Works, Bailland, Mich.

Drilling Machines, Semi-Automatic Stecher Co., Chao., 2452 N. Greenview Av., Chinage

Drilling Machines, Sensitive Avey Drilling Machine Co., Concensuit Burke Machine Tool Co., Conneaut, Ohlo Foote-Rurt Co., Cleveland, O. Leland-Gifford Co., Worcester, Mass. Sigourney Tool Co., Hartford, Conn. Taylor & Fenn Co., Hartford, Conn.

Drilling Machines, Vertical printing Machines Co., Unclimental Leisand-Gifferd Co., Wercester, Mass. Gesterlein Machine Co., Cinclinati, Onle Standard Giffert Co., Wercester, Mass. Carterian Machine Co., Cinclinati, Onle Standard Giffertical Tool Co., Cinclinati, O. Taylor & Fenn Co., Nartford. Comp. U. S. Electrical Tool Co., Cinclinati, Obio

Drills, Twist Cleveland, Chie. Cleveland, Chie.

Emery Wheel Dressers and Cutters Taylor & Fenn Co., Hartford, Conn. Western Tool & Mfg. Co., Springfield, O.

Engravers, Mechanical and Hand Schwerdtle Stamp Co., Bridgeport, Conn. U. S. Electrical Tool Co., Cincinnati, Ohio

Etching Machines, Electric Brewster Co., Wm. 50 Church St., New York Luma Electric Equipment Co., Teledo, Oblo, U. S. Electrical Tool Co., Clacionati, Oblo

Experimental Work
American Tool Works, Inc., Hartford, Conn.

Filing Machines LaPorte Machine & Tool Co., LaPorte, Ind. Oliver instrument Co., Adrien, Mich. Wardwell Mfg. Co., Cleveland, U.

Filing and Sawing Machines
LaPorte Machine & Tool Co., LaPorte, Ind.

Flexible Shaft Machinery Hashins Co., M. G., 4654 W. Fulton St., Chicago Keller Mech. Eng. Corp., 58A Washington St., Brookiya, N. Y. Mall Tool Co., 7730 S. Chicago Ave., Chicago U. S. Electrical Tool Co., Chiclanski, Obio

Buffato Forge Co., Buffale, N. Y.

Forgings, Hollow Bored American Hollow Boring Co., Brie, Pa.

Furniture, Machine Shop Western Tool & Mfg. Co., Springfield, O.

Gages, Dial Standard Gage Co., Poughkoopsie, N. Y.

Gages, Pin, Plug, Ring and Snap American Tool Works, Inc., Hartford, Cot Standard Gage Co., Poughkeepsle, N. Y. Gages, Special

Gages, Special Standard Gage Co., Poughkeepele, N. Y.

Gages, Spline Colonial Tool Co., Inc., Detroit, Mich.

Gauges, Taper Hartford Special Mchy. Co., Hartford, Conn. Gear Burnishers City Machine & Tool Works, Dayton, Ohio

Gear Cutters Chicago Gear Works, 769-773 W. Jackson Hwd., Chicago Triplex Machine Toel Corp., 50 Church St., New York

Gear Hobbers
Scherr Co., Geo., 144 Liberty St., New York
Triplex Machine Tool Corp., 50 Church St.,
New York

Gears
Besten Gear Works Sales Company, Norfolk
Dwwn, Mass.
Chicago Gear Works, 769-777 M
Crofont Gear Orr, C.E., So. Esston, Mass.
Horsburgh & Scut Co., Cleveland, Ohio
Jones Foundry & Machine Co., W A.,
4660 W. Roosevolt Road, Chicago
Massachusetta Gear & T.C., Wobern, Mass.

Massachusett Gear & T. Co., Wobern, Mass.

Gears, Herringhone
Crofcot Gear Carp., C. E., So. Easton, Mass.
Hersburgh & Scott Co., Cleveland, Ohio
Jones Foundry & Machine Co., W. A., 4450
W. Hoosavett Bload, Chiesgo

Jones Foundry & Machine Ce, W. A., 4480 W. Hooswelt Hoad, Chicago Gears, Rawhide, Bakelite, Fabroil Chicago Gear Works, 760-773 W. Jackson Crofoot Gear Corp., O. E., Se Easton, Mass. Horsburgh & Scott Co., Che Veseland, Ohio

Horsburgh & Scott Co., Cleveland, Ohio
Grinders, Air
Madison-Kipp Corporation, Madison, Wis.

Grinding Machine Att., Presmatic Turbine Onsrod Machine Works, Inc., 3910 Palmer St., Chicago

Grinding Machines, Angle Plate Hisey-Wolf Machine Co., Cincinnati, Ohio U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Machines, Belt Gallmeyer & Livingston Co., Grand Rapids, Nich, Peerless Surfacing Machine Co., Troy, N.Y. Walls Salos Corp., 56 Warren St., New York

Grinding Machines, Bench Cutter Machine Co., 5t. Leule, Mo. Gallmeyer & Livingaton Co., Grand Rapids, Hammond Mehy. Builders, Inc., Kalamatho, Hisay, Wolf Machine Co., Cincinnati, O. Hisay, Wolf Machine Co., Cincinnati, O. Btoody Company, Whittier, Califf

Grisding Mchs., Combination Buffer Cutter Machine Co., St. Louis, Mo. Hisey-Woif Machine Co., Cincinnati, Ohio Stoody Company, Whittier, Calif. U. S. Electrical Tool Co., Cincinnati, Ohio

Grisding Machines, Letter, Reamer and Teel Gallmeyer & Livingston Co., Grand Rander, Blesy-Wolf Machine Co., Gickinnatt, G. Les Jarceli Mche, & T. Co., Grand Rander, McL. LeBlond Mch. Tool Co., B. K., Cincinnatt, G. LeBlond Mch. Tool Co., B. K., Cincinnatt, G. LeBlond Mch. Tool Co., B. K., Cincinnatt, G. Givernatument Co., Adrian, Michael Stevens Inc., John H., 200 Bildaen Street, Thompson Grinder Co., Springfield, Ghie U. S. Biectrical Tool Co., Cincinnati, Ohie

Grinding Machines, Cylindrical Jarschi Mche. & T. Co., Grand Rapide, Mich. Thompson Grinder Co., Springfield, Ohio

Grinding Machines, Die Gallmeyer & Livingsten Co., Grand Rapids, Mich. Jarecki Mche. & T. Co., Grand Rapids, Mich. Thompson Grinder Co., Springfield, Ohio U.S. Electrical Tool Co., Cincinnati, Okio

Grinding Machines, Disc Galimeyre & Livingston Co., Grand Rapide, Mich. Gardner Machine Co., Beloit, Wis. Hisey-Wolf Machine Co., Cincinnsi, Ohio Forter Cable Hutchinson Corp., Stracuse, U. S. Electrical Tool Co., Cincinnsti, Ohio Winterhoff Tool & Miche. Co., Elkhart, Ind.

Grinding Machines, Drill Gallmayer & Livingston Co., Grand Repide, Mich. Oliver Instrument Co., Adrian, Mich.

Grinding Machines, External
Hisey-Wolf Machine Co., Cincinnati, Obio
U. S. Electrical Tool Co., Cincinnati, Obio

Grinding Machines, Face Taylor & Fenn Co., Hartford, Conn.

Grinding Machines, Floor Hisey-Wolf Machine Co., Cincinnati, Ohio

Grinding Machines, Flexible Shaft Keller Mch. Eng. Corp., 58A Washington St., Stoody Company, Whittier, Galif. U. S. Electrical Tool Co., Clincinnati, Ohio

Grinding Machines, Hob Scherr Co., Geo., 144 Liberty St., New York

Grinding Machines, Internal Hisey-Wolf Machine Co., Clincinnati, Ohio-Mail Teel Co., 8389 S. Cheago Ave., Chro. Onsrud Machine Works, Inc., 2010 Palmer Palmer-Edwards Co., Filtt, Mich. Taylor & Fenn Co., Hartford, Conn. Thompson Grinder Co., Springfield, Ohio

Grinding Machines, Center Electric Hisey-Wolf Machine Co., Cincinnati, O. U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Machines, Lathe Electric Hasy-Wolf Machine Co., Cincinnati, O. U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Machines, Portable Electric Blesy-Wolf Machine Co., Clincinnati, O. Keiler Mech. Eng. Co., 584 Washington, Mail Teel Co., 7789 S. Chicago Ave., Chag. Pwter Cabbs-Butchinson Corp., Spracus, Standard Electrical Teel Co., Clincinnati, O. Stoody Company, Whitter, Calif. Strand Co., No. 4, 5001 N. Lincoli St., Chipo Strand Co., No. 4, 5001 N. Lincoli St., Chipo Wintertoof Tool & Eche. Co., Elbhart. Ind. Wintertoof Tool & Eche. Co., Elbhart. Ind.

Grinding Machines, Snagging Gallmeyer & Livingston Co., Grand Rapids. Mich. Hammood Mchy. Builders, Inc., Kalamatoo, Mich. Hisey-Wolf Machine Co., Cincinnati, Ohio Jareeki Miche. & T. Co., Grand Rapids, Mich.

Grinding Machines, Surface Gallmorer & Livingston Co., Grand Rapide, Mick. Hisay-Wolf Machine Co., Cincinnati, O. Stevens Inc., John B., 206 Hudson Street, New York Thompson Grinder Co., Springfield, Ohio U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Machines, Tap Gallmeyer & Livingston Co., Grand Rapide, Mich. Oliver Instrument Co., Adrian, Mich.

Grinding Machines, Tool
Cutter Machine Co., St. Louis, Mo.
Hammond Mehr. Builders, Inc., Kaiamasco.,
Hammond Machine Co., Cincinnatt, Ohio
Contertein Machine Co., Cincinnatt, Ohio
Contertein Machine Co., Cincinnatt, Ohio
Taylor & Fenn Co., Hartford, Com.,
U. S. Electrical Tool Co., Cincinnatt, Ohio

Grinding Machines, Tool Post Hisey-Wolf Machine Co., Cincinnati, Ohio U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Machines, Universal Gallmeyer & Livingston Co., Grand Rapids, With Thompson Grinder Co., Springfield, Ohie

Grinding Machines, Vertical Spindle Hisey-Wolf Machine Co., Cincinnati, Ohio U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Wheel Dressers Hisey-Welf Machine Co., Cincinnati, Ohio U. S. Electrical Tool Co., Cincinnati, Ohio

Hack Saw Blades Armstrong-Blum Mfg. Co., 841 N. Francisco Ave., Chicago Posriese Machine Co., Racine, Wis. Racine Tool & Machine Co. 1754 State Street, Racine, Wis.

Hack Saw Machines
Armstrong-Blum Mfg. Co., 341 N. Francisco
Av., Chicago
Poorless Machine Co., Barine, Wie.

Poorioss Machine Co., Racine, Win.
Racine Tool & Machine Co. 1766 State Street,
Racine, Wie.
Hammers, Chipping and Calking
Canton Preumatic Co., Canton, Ohio

Hob Grinders
Triplex Machine Tool Corp., 50 Church St.,
New York

Heists, Electric Browning & Co., Inc., Victor B., Cieveland, Ohio Heists, Portable Canton Foundry & Machine Co., Canton, Ohio

Hose Couplings Hunt & Son, C. B., Salem, Ohio

Index Centers, Single and Multi Spdl. Fay & Scott, Dexter, Maine Stevens Inc., John B., 306 Hudsen Street, New York

Indicators, Dial Standard Gage Co., Poughkespais, N. Y.

Jigs and Fixtures
American Tool Works, Inc., Hartford, Conn.
City Machine & Tool Works, Dayton, Ohio
Hannifto Mfg. Co., 621 S. Kolmar Av., Chgo.
Hartford Special Mehy. Co., Hartford, Conn.
LaPorts Machine & Tool Co., LaPorts, Ind.

Keyseating Machines
Davis Keyseater Co., Rochester, N. Y.

Lathe Accessories and Attachments Fay & Scott, Dexter, Maine Reed-Prentice Corp., Worcester, Mass. Ryerosen & Son, Inc., J. T., Chicago, III.

Lathe Drives

Millers, Tilted Rotary and Offset
Cullman Wheel Co., 1359 Altgeld St., Chgo. Oesterlein Machine Co., Cincinnati, Ohio

Lathes, Automatic Townsend Mfg. Co., H. P., Hartford, Conn.

Lathes, Engine
Lathes, Engine
Lathes, Engine
Lathes, Engine
Lathes, Engine
Lathes, Lather, Lat

Rahn-Larmen Co., Cincinnati, Ohio Roed-Prentice Corp., Worcestar, Mass. Ryerson & Son, Inc., J. T., Chicago, Ili. Springfield Machine Tool Co., Springfield, O.

Lathes, Extension Bed Gap LeBland Mch. Tool Co., R. K., Cincinnati, O. Rahn-Larmon Co., Cincinnati, O.

Lathes, Gap Lationd Mch. Tool Co., R.K., Cincinnati, O.

Lather, Hand Stevens Inc., John B., 306 Hudson Street, New York

Lather, Hydraulic Automatic Monarch Machine Tool Co., Sidney, Ohio

Lathes, Manufacturing Hellend Mch. Tool Co., R. K., Cincinnati, O., Monarch Machine Tool Co., Sidney, Ohle Reed-Frentice Corp., Woccester, Mass. Sundatrand Machine Tool Co., Rockford, III.

Lather, Precision
Bradford Machine Tool Co., Cincinnati, Ohio
Le Bland Meh. Tool Co., R. K., Cincinnati, O.,
Monarch Machine Tool Co., Sidney, Ohio
Raed-Prentice Corp., Worcester, Mess.
Wade Tool Co., Waltham, Mass.

Lathes, Short Bed Porter-Cable-Hutchinson Corp., Syracuse, N. T. Reed-Prentice Corp., Worcester, Mass, Ryerson & Son, Inc., J. T., Chicago, Ili.

Lathes, Tool Room Bradford Machine Tool Co., Cimeinnati, Ohio Le Blond Mich. Tool Co., R.E., Cimeinnati, O., Monarch Machine Tool Co., Sidney, Ohio Reed-Frentice Corp., Worcester, Mass,

Lathes, Turret Bradford Machine Tool Co., Cincinnati, O. Menarch Machine Tool Co., Sidney, O.

Lubricator, Automatic Norgren Co., Carl, A., Denver, Cole.

Lubricators, Engine Madison-Kipp Corporation, Madison, Wis.

Lubricators, Machine Tool Madison-Kipp Corporation, Madison, Wis.

Mandreis, Expanding Hannifin Mfg. Co., 821 S. Kolmar Av., Chgo. Nicholaon & Co., W. H., Wilhen-Harre, Pa-Western Tool & Mfg. Co., Springfield, O.

Mandrels, Solid Nicholson & Co., W. II., Wilkes-Barrs, Ps.

Milling Attachments
Burke Machine Tool Co., Conneaut, Ohio
Kearney & Trecher Corp., Milwaukee, Wis.
Leitlend Mch. Tool Co., B.K., Chacinnatt, O.
Porter-Cable-Hutchinson Corp., Syracuse,
N.Y.

Reed-Prentice Corp., Worcester, Mass. Stevens Inc., John B., 306 Hudson Street, New York Taylor & Fenn Co., Hartford, Conn.

Milling Machines, Automatic
Ocuterioin Machine Co., Cincinnati, Oblo

Milling Machines, Bench Burke Machine Tool Co., Conneaut, Ohle Sundstrand Machine Tool Co., Rockford, III.

Milling Machines, Hand burke Machine Tool Co., Conneaut, Ohle sundstrand Machine Tool Co., Nockford, III. uperior Machine & Eng. Co., Detroit, Mitch.

Milling Machines, Horizontal Gesterlein Machine Co., Cincinnati, Ohlo

Milling Machines, Manufacturing Kearney & Trecker Corp., Milwankee, Wis

Milling Machines, Offset Oesterlein Machine Co., Cincinnati, Ohlo

Milling Machines, Plain Burke Machine Tool Co., Conneaut, Ohio Kearney & Trecker Corp., Milwaukee, Wis, LeBlond Mch. Tool Co., R. K., Cincinnati, O. Cestorlein Müschine Co., Cincinnati, Ohio Sundatrand Machine Tool Co., Blockford, III.

Milling Machines, Portable Pedrick Tool & Machine Co., Philadelphia

Milling Machines, Retary Oesterioin Machine Co., Cincinnati, Ohio

Milling Machines, Spline Taylor & Fenn Co., Hartford, Conn.

Milling Machines, Universal Kearney & Trecker Corp., Milwaukee, Wis. Leftlend Mch. Tool Ce., R K., Cincinnati, O. Gesterieth Machine Co., Cincinnati, Ohio

Milling Machines, Vertical
Burks Machine Tool Co., Conneaut, Ohlo
Kearner & Trecker Corp., Milwaukee, Wis.
Lefilond Mch. Tool Co., R. K., Cincinnast, O.
Costerlein Machine Co., Cincinnast, Obio
Bartica Gerp., Wordenter, Mass.
Taylor & Penn Co., tistriced, Com.

Mills, Adjustable Hollow Genosee Mfg. Co., Inc., Hochester, N. Y.

Name Plates, Etched and Stamped Schwerdtle Stamp Co., Bridgeport, Conn.

Nut Setters, Electric Hisey-Wolf Machine Co., Cincinnati, Ohio Vim Electric Tool Co., 149 Broadway, N. Y.

Nuts, Milled from Bar Western Screw-Products Co., St. Louis, Mo.

Pins, Leader And Dowel
Baumbach Mfg. Co., E. A., 1812 So. Ellbourne Ave., Chicage
Danly Machine Specialties, Inc., 2116 S. 520
Ave., Chicage

Danly Machine Specialties, Inc., 2116 S. 5:
Ave., Chica
Pipe Bending Machines
Federick Tool & Machine Co., Philadelphia

Fedrick Tool & Machine Co., Phili

Pipe Cutters Ridge Tool Co., Elyria, Ohlo

Pipe Vises Ridge Tool Co., Elyrla, Ohio

Pipe Wrenches Ridge Tool Co., Elyria, Ohio

Planers, Valve Seat, Portable Pedrick Tool & Machine Co., Philadelphia

Planing Machines Cleveland Planer Co., Cleveland, Ohie Ryerson & Son, Inc., J. T., Chicago, Ill.

Point Thinning Machines Oliver Instrument Co., Adrian, Mich.

Palishing and Buffing Mackines Cutter Machine Co., 6t. Louis, 10. Extended to the Co., 8t. Louis, 10. Extended Mich. Builders, 1nc., Kalamanoo, Mistr. Hiney-Welf Machine Co., Cincinnati, O., Mail Tool Co., 7730 S. Chicago Ave., Chicago Standard Electrical Tool Co., Chicamati, O.

Presses, Air Hannifin Mfg. Co., 621 S. Kelmar Av., Chgo.

Presses, Arbor
Atlas Press Co., Kalamazoo, Mich.
Bartlett, Edwin E., Nashua, N. H.
Nicholson & Co., W. H., Wilkes-Barre, Pa.
Sheldon Machine Co., 2825 Cottage Grere
Wilson, R. K., Buffalo, N. Y.

Presses, Broaching Bartlett, Edwin E., Nashua, N. H.

Presses, Foot Rockford Iron Works, Rockford, Ill. Taylor & Fenn Co., Hartford, Cons.

Presses, Power Headley & Whittemere Co., Seleit, Wis. Rockford Iron Works, Rockford, III.

Presses, Punch Lewthwalte Mche.Co., T.H., 311E. 47th., N.Y. Sockford Iron Works, Bockford, Ill.

Presses, Screw Jarocki Mche. & T. Co., Grand Rapids, Mich.

Pulley Machinery Aver Drilling Machine Co., Cincinnati Profiling Machines
Wade Tool Co., Waltham, Mass.

Pulleys, Iron, Solid and Split Conway Clutch Co., Cincinnati, O. Jones Foundry & Machine Co., W. A., 4450 W. Rooseveit Road, Chicago

Pumps, Coolant Roper Corporation, Geo. D., Rockford, III.

Pumps, Lubricant
Ruthman Machinery Co., Cincinnati, O.

Ruthman Machinery Co., Cincinnati, O.
Punch Press Feeds

Rockford fron Works, Rockford, Ill.
Wittek Mfg. Co., 4309 W. 24th Place, Chgo.
Punch, Shear and Bender, Hand
Armstrong Blum Mfg. Co., 341 N. Francisco
Ava., Chicago

Punches, Hand Armstrong-Blum Mfg. Co., 241 N. Francisco Buffalo Force Co., Buffalo, N. Av., Chicage Buffalo Force Co., Buffalo, N. Av., Chicage Hendley & Whittemore Co., Beloit, Wis. Lewthwalte Mche. Co., T. H., 311 E. 47th, New York Whitney Metal Tool Co., Bockford, M.

Whitney Metal Tool Co., Bockford, III.

Punches, Power
Bandley & Whittsmore Co., Beloit, Wis.

Punches and Dies Hendley & Whittemore Co., Beloit, Wis. Lewthwaits Mche, Co., T. H., 311 E. 47th., N. Y. Reckford from Works, Reckford, III.

Punches and Shears
Excelsior Tool & Mch. Co., &. St. Louis, III.

Racks, Bar Stock
Yohe Supply Co., Wm. S., Canten, O.

Reamer Holders Nicholson & Co., W. H., Wilksebarre, Pa.

Reamers, Adjustable Claveland Twist Drill Co., Claveland, Ohio, Schellenbach-Hunt Tool Co., Cincinnati, O.

Reamers, Portable Electric Hiney-Wolf Machine Co., Cincinnati, Ohio U. S. Electrical Tool Co., Cincinnati, Ohio

Riveters, Multiple Spindle Grant Mfg. & Mche. Co., Bridgeport, Conn. Riveters, Pneumatic Grant Mfg. & Mche. Co., Bridgeport, Conn.

Riveting Machine Equipment Linley Bros. Co., Bridgeport, Conn.

Riveting Machines
Buffalo Forge Co., Buffalo, N. Y.,
Canton Foreumatic Co., Canton, Oblo
Grant Mfg. & Mche. Co., Bridgeport, Conn.
Linley Bron. Co., Bridgeport, Conn.
Townsend Mfg. Co., H. P., Hartford, Conb.

Red Cutters
Armstrong-Blum Mfg. Co., 841 N. Francisco
Bandley & Whittemore Co., Haloit. Wis.
Lewthwalts Miche. Co., T. H., 311. E. 47th, N. Y.

Rotary Tables, Hand Feed Stevens Inc., John B., 306 Hudson Street, New York

Saw Sharpening Machines Wardwell Mfg. Co., Cleveland, O.

Saws, Electric Hand

Reed-Prentice Corp., Worcester, Mass.

Scraping Machines, Hand & Pneumatic Anderson Brothers Mfg. Co., Rockford, W.

Screw Drivers, Electric Hisey-Wolf Machine Co., Cincinnati, O. U. S. Kiectrical Tool Co., Cincinnati, Ohi Vim Electric Tool Co., 149 Broadway, N.

Screw Driving Machines, Automatic

Screw Machine Products National Acme Co., Claveland, Oblo. Western Screw-Products Co., St. Lauis, Mo.

Screw Machines, Automatic National Acme Co., Cleveland, Ohio. Townsend Mfg. Co., H. P., Hartford, Coon.

Set Screws Western Screw-Products Co., St. Louis, Mo.

Set-Up Appliances Standard Shop Equip. Co., Philadelphia, Pa.

Shafts, Flexible Hacking Co., R. G. 4654 W. Fulton St., Chicago Keller Mech. Eng. Corp., 58A Washington St., Breeklyn, N. Y., Mail Tool Co., 7730 S. Chicago Ava., Chgo. Strand Co., N. A., 5001 N. Linceln St., Chgo. U. S. Electrical Tool Co., Cincinnati, Ohio

Shafts, Steel American Hollow Boring Co., Erie, Pe.

Shaping Machines American Tool Works Co., Clarinnesti, O., Oaborne & Sexton Machy, Co., Colombus, O. Ryerson & Son, Inc., J. T., Chicago, III. Smith & Mills Co., Claricinosti Springfield Machine Toel Co., Springfield, O. Western Hichs. Tool Works, Holland, Mich.

Shears, Alligator Canton Foundry & Machine Co., Canton, O.

Shears, Hand
Bundstrong-Blum Mfg. Co. 841 N. Francisco
Bundslo Forgo Co., Ruffalo, N.
Bisodier & Whittenere Co., Beleit, Wis.
Lewthwaite Machine Co., T. H., 331 E. 47th
Bit., New York
Whitney Metal Tool Co., Reckford, III.

Shears, Power Buffalo Forge Co., Buffalo, N. Y. Handley & Whitzemore Co., Heleit, W Libert Machine Co., Green Bay, Wis.

Slotting Machines, Screw Head Stevens Inc., John B., 306 Hudson Street, New York

Spacing Washers Detroit Stamping Co., Detroit, Mich.

Special Tools and Machinery
American Tool Works, Inc., Marford, Coon,
Otty Machine & Tool Works, Dayton, ObioLaForts Machine & Tool Works, Dayton, ObioLaForts Machine & Tool Co., LaForts, Ind.
Back-Propriet Grop. Worcester, Mass.
Repetror Machine & Knn. Co., Detreit, Mich.
Wade Tool Co., Waltham, Mass.

Speed Reducers, Worm, Spur and

Speed Reducers, Worm, Spir and Herringbea Ce., Norfulle Booton Gear Works, 769-723 W. Jackson Chicago Gear Works, 769-723 W. Jackson Cullman Wheel Co., 1850 AlBred St. Chicago Cullman Wheel Co., 1850 AlBred St. Chicago Chicago Chicago Chicago Jones Foundry & Machine Co., Web. Jones Foundry & Machine Co., Chicago

Spring Taper Sleeves Scherr Co., Geo., 144 Liberty St., New York

Sprockets Sprockets
Chicago Gear Works, 789-773 W. Jackson
Blvd., Chicago
Cullman Wheel Co., 1359 Altgeld St., Chgo.
Jones Foundry & Machine Co., W. A.,
4450 W. Bounevelt Road, Chicago
Massachusetts Gear & T. Co., Wohrn, Mass.

Stamps, Steel and Rubber Schwerdtie Stamp Co., Bridgeport, Conn.

Stencile, Brass and Oil Board Schwerdtle Stamp Co., Bridgeport, Conn.

Straightening Machines Springfield Machine Tool Co., Springfield, O. Whitney Metal Too Co., Reckford, Ill.

Stud Setters Procunier Safaty Chuck Co., 14 S. Clinton

Stude, Milled Western Screw-Products Co., St. Louis, Mo.

Tap Extractors Walton Co., Hartford, Conn.

Tap Holders Procunier Safety Chuck Co., 14 S. Clinton

Tapping Machines and Attachments lasping Machine's and Atlachments Aver Drilling Machine Ce, Cincinnati Burks Machine Tool Co., Inc., title Jadean Ettor Tube & Tool Co., Inc., title Jadean Ettor Tube & Tool Co., Inc., title Jadean Hammend Mfg. Co., Cesreland, Ohio Lealand, Gifford Ce., Worcester, Mass. Procunies Safety Chuck Co., 14 S. Clinto Western Mittle. Tool Works, Hilland, Mich Weltzer Mittle Tool Co., Reckford, III.

Taps, Cellapsing National Acme Co., Cleveland, Oblo

Thread Diale Golven, J. M., Yonkers, N. Y.

Thread Millers Schert Co., Geo. 144 Liberty St., New York Triplex Machine Tool Corp., 50 Church St., New York Thread Millers

Threading Machines, Automatic, Stud Grant Mfg. & Mche. Co., Bridgeport, Conn.

Threading Tools
Armstrong Bros. Tool Co., 808 N. Francisco
Av., Chicago

Tool Holders Armstrong Bros. Tool Co., 808 N. Francisco Av., Chicago Western Tool & Mfg. Co., Springfield, O.

Tools, Boring
Atmetrong Bros. Tool Co., 308 N. Francisco
Av., Chicago

Tools, Lathe and Planer
Armstrong Bress. Tool Co., 208 N. Francisco
Av., Chicago

Tools, Machinists'
Armstrong Bres. Tool Co., 306 N. Francisco
Av., Chicago

Tools, Spot Facing Genesee Mig. Co., Inc., Rochauter, N. Y.

Tube Flanging Machines Grant Mfg. & Mche. Co., Bridgeport, Conn.

Turntables Canton Foundry & Machine Co., Canton, O.

Turret Tool Posts Fay & Scott, Dexter, Maine

Universal Joints

American Tool Works, Inc., Hartford, Conn.
Boston Gear Works Sales Company, Noorfolk

Used and Rebuilt Machinery
American Tool Works Co., Cincinnati, Onio
Automatic Machine & Engine Detrott, Mich.
Bennett Machinery Co., 30 Church, St.,
Bernstein & Co., Geo. M., 221 N., Zillaser,
Brandt Machinery Co., 221 N., Zillaser,
Broad Machinery Co., Pittaburth, Fr.,
Broadway Machinery Co., Pittaburth, Fr.,
Broadway Machinery Co., Pittaburth, Fr.,
Brown Machinery Co., St., Leuts, Mo.,
I. Cincinnation of the Co., New York, N. Y.
Brown Machinery Co., St., Leuts, Mo.,
I. Cincinnation of the Co., New York, N. Y.
Brown Machinery Co., Chicanation, Chicago
Davis Machinery Exchange, Tolded, O., Mich.
Donahita Stewl Preducts Co., Tith and
Rastern Machinery Co., Chicago
Raster Machinery Co., Chicago
Raster Machinery Co., Chicago
Goidaber McDy, Co., ST. W. Lake St., Cher Glicago
Goidaber McDy, Co., ST. W. Lake St., Cher Hyman & Sons, Jesselh, Philadelphol.
Chicago
Hyman & Sons, Jesselh, Philadelphol.
Chicago
Hyman & Sons, Machinery Co., Wrn., C.,
St., Losin, W. R.,

Hyman & Bens, Jesseb, Fullscaugus Indianapolis Mchr. & Supply Co., inclianapolis Mchr. & Supply Co., inclianapolis Mchr. & Supply Co., wm. C., Jones Machine Tool Co., Co. St. Louis, Mo. Jones Machine Tool Co., Co. St. Louis, Gibber Mchr. Co., E. L., St. Louis, Klauber Mchr. Co., E. L., St. Louis, McDonald Machinery Co., St. Co., 200 S. Clinton Midam Stefa & Equip. Co., 400 S. Clinton Midam Stefa & Equip. Co., 400 S. Clinton Midwast Equipment Co., 624 W. Lake St. Mid. Mchinery Co., Sariaw W. S. Mid. Mellier Mchy. Co., Chas., 118 S. Clinton, Movey and Co., Inc., 400 Broome St. N. Mid. Movey and Co., Inc., 400 Broome St. N. Mido.

Mid-West Machine Tool & Supply Company,
Miles Machinery Co., Seattle Dawsoort, Joseph Miles Machinery Co., Cast. Base Sort, Joseph Miles Machinery Co., Ches., 118 S. Clinton,
Morey and Co., Inc., 408 Brooms St. Chicago
Norton Stroadway Mehr. Co., Cincinsti. O.,
O'Brien Machinery Co., Philadelphia.
O'Brien Machinery Co., Cincinsti. O.,
Randis Machinery Co., Cincinsti. O.,
Randis

Used and Rebuilt Machinery—Cont.
Riverside Machinery Co., Detroit, Mich.
Russell Machine Co., Pittaburgh, Pa.,
Schoolder Machinery Co., 604 W. Lake St.,
Chicage
Segal Mchy. Co., 809 W. Lake St., Chicage

Consent Sachuler (1998). We be seen the consent sachuler (1998). The consent sachuler (1998). See t

United Mehy: & Supply Co., St. Louis.
Wach-Grouge & Co., 117 N. Jefferston St.,
Wachb Mchy: Co., O. T., Milwaukee, Wie,
Westman Mchy, Co., M. A., Cleveiand, O.,
West Faon Machinery Co., Pittsburgh, Fa.
White Machy: Co., A. D., 10 St., Chicage
Wilgerlesworth Mchy, Co., Rooton, Mass.
Wilgerlesworth Mchy, Co., Rooton, Mass.
Winterer, Herman L., Philodelphia, Pa.

Valves, Air Control Hannifin Mfg. Co., 621 S. Kolmar Av., Chgo.

Vises, Air Operated Hunnifin Mfg. Co., 621 S. Kolmar Av., Chgo.

Vises, Drilling Machine
Armstrong-Blum Mg. Co., 341 N. Francisco
Armstrong Res. Tool Co., 308 N. Francisco
Martin Tool & Die Works, J. E., Springfield, Ö.
Miller & Crewningshield, Girsenfield, Machine
Sheidon Machine Co., 2838 Cettage Grove
Sheidon Machine Co., 2838 Cettage Grove
Ave., Chicago

Vises, Machinists'
Miller & Crowningshield, Greenfield, Mass.
Planket Miche. Co., J. E., 215 N. Ada, Chgo.
Sheldon Machine Co., 2838 Cottage Grove
Western Tool & Mfg. Co., Springfield, O.

Vises, Milling Machine
Hartford Special Mcby. Co., Hartford, Conn.
Millier & Crountingshield, Greenfield, Mass.
Plunket Mche Co., J. E., 215 N. Ada, Chgo.
Sheldon Machine Co., 2232 Aye., Chica
Stevans Inc., John B., 396 Hudson Street,
New York

Plunket Mche. Co., J. E., 215 N. Ada, Chgo. Sheldon Machine Co., 2253 Cettage Grove Action Book Co., 2253 Cettage Grove

Vises, Shaper

Welders, Butt, Spet and Seam Lenney Mche. & Mfg. Co., Warren, Obio

Wood Working Machinery Hendley & Whittemore Co., Beloit, Wis. Porter-Cable-Hutchinson Corp., Syracuse, N. Y.

Warms
Chicago Goar Works, 760-773 W. Jackson
Blvd., Chicago
Massachonetts Gear & T. Ce., Webstra, Mass.
Junes Foundry & Machine Co., W. A., 4450
W. Roosevelt Road, Chicago

### "X-L" Adjustable Inserted Spiral Blade Shell and **Machine Reamer**



Reamers made with Left Hand Angle Cutting Blades do not dig in, and all chatter is eliminated. This means free, clean cutting, smooth holes, and increased production. The range of expansion is from . 100" in the smaller

with High

Speed Steel

Blades.

This is a sizes to .150" in the real produclarger sizes. Made tion reamer. The left hand helical flutes cut fast and clean. Made only in high speed steel. Made with straight and tapered shanks.

All Sizes Carried in Stock

Catalog on Request

The Schellenbach-Hunt Tool Co.

118 Opera Place, Cincinnati, Ohio

Agents: E. E. Fletcher, 6007 Encild Ave., Claveland, Ohio

### **Used and Rebuilt Machinery Section**

Lists of Used and Rebuilt Machinery, either For Sale, Wanted, or For Exchange, set in uniform style, will be published in the Classified Section at the rate of 60 cents a line across the page, each issue, plus \$3.00 for name and address. Minimum charge, \$6.00. No display permitted.

Write directly to those offering the machines for sale, for prices and full descriptions. If what you seek is not advertised, use the blank enclosed to make known your wants in either new or used machinery, and the publisher will pass them along to the advertisers,

#### FOR SALE BY

Horton Machine Works, Inc., . 104 Fourth St., El RADIAL DRILL
One 4 foot radial drill press in good condition. Cheap for cash. 104 Fourth St., Elmira, N. Y.

#### FOR SALE BY

Goldsher Machinery Co,,

Air comp., 6x6 Curtiss & Gardner. Blower, fan, 2 h. p. mtr., 600 r. p. m. Chain hoist, 1 ton Franklin-M., m.d. Gear cutters. Whiton d. e. Lathes, 28"x14" Blaisdell.

817 W. Lake St., Chicago, Ill.

Pipe threader, 12" to 6" Williams. Planer, 24"x6' Hendey. Punch presses, Nos. 2, 3, & 4. Punch & shear, Royersford dbl. end. Welder, butt.

#### FOR SALE BY

United Mchry. & Supply Co.,

Bolt cut., Oster & National, 2 & 3". Bulldozer, Williams & White U-29. Groover, oil. Fisher. Hammers, 25. 50 and 100 lbs.
Planer, 60"x60"x14", motor drive,
Press, No. 56 Toledo 7" stroke, b.g. 1241 Walton St., St. Louis, Mo.

Press, horning, No. 44 Ferracute. Punch and shear, No. 54 H. & W. Punch and shear, No. 9A Beloit. Rolls, 5'x3" hand power. Rolls, 7'x7" diameter H. & J. Shear, flanging att., No.20° Niagara,

#### FOR SALE BY

Midwest Equipment Co.,

Camel back, Barnes 4-spindle. Drill press, Allen 2-spindle, b. b. Gear hobbers, No. 2 Adams Far.(3). Gear hobber, No. 3 Barber-Colman. Grinder, 6x32 Norton. Grinder, 24" Badger disc, b, b.

624 W. Lake St., Chicago, Ill.

Lathe, 18"x10" Davis, 1. c. g. Miller, No. 2 Kempsmith plain. Miller, No. 6 Rockford. Press, Henry & Wright 3-spindle. Shaper. 24" American. Threader, 6" Williams pipe. Small tools, electric drills, belting, motors and air compressors.

#### FOR SALE BY

General Machinery Corporation, Drill, Sibley 24" sl. hd., b. g., p. f. Drill, Myers 14" with rd. & sq. tbls. Grinder, Landis 6x18 plain, c. s. Lathe, Warner & Swasey fox.

Miller, Burke No. 2 bench, p. f. Miller, Becker No. 7-H, Lincoln type.

140 Federal St., Boston, Mass. Miller, No. 8 Hendey improved Lincoln type,

Lathe, Monarch 12"x5' q. c. g. Shaper, Hendey friction 15". Shaper, Potter & Johnston 15" universal.

Please say "Blue Book" when writing to advertisers.

#### USED AND REBUILT MACHINERY

#### FOR SALE BY

Boyd C. Fagan,

Bivalve, N. J.

UPSETTER

1-14" Ajax upsetter, all steel bed, this machine is in good condition. \$750.00 cars, Bivaive, N. J.

#### FOR SALE BY

### Marr-Galbreath Machinery Co.,

Air comp.,52 cfm,200 lbs.; vert. 15 h.p. mtr, 2/60/220, auto. control & tank Air compresor (steam), 412 c. f. m., Bender & straight'r, cap. 12" beams. Blowers, Root No. 1, 500 c. p. m. Blowers & exh., 6, 8, 9 & 16" opening. Bolt cutter, 1" Wells Bros., m. d. Bolt cutter, 1" Wells Bros., m. d. Bolt cutters, 14" Morgan, 2 heads. Bolt cutter, 14" Landis, dbl. hd. (l. s.) Bolt cutter, 2" Acme, single head. Eoring mill, 30" Klus. Boring mill, 30" Klus. Boring mill, 24" bar W. & S. horiz. Boring mill, 37 bar w. & S. noriz. Brake, 8', 20 ga., hand. Brake, 8', 12 ga., power, Chicago. Brakes, hand, 4', 8', 10', for 18 ga. Broaching mcb., No. 3 La P. Hudson. Cold header, #" W-F., solid die. Cold neader, y w-r., sond die. Cold saws, Nos. 11g and 12 Higley. Drill, 20" Aurora, t. a., for m. d. Drill, 26" Barnes, b. g., p. f. Drills, radial, 5' Prentice. Drills, radial, 34 Bickford Drill, sensitive radial, 3' Amer. t.a. Forging mach., 1 Amer. t.a. Forging mach., 1 Anax, steel bed. Forging mche., 3 Acme steel bed. Forging mche., 3" Acme steel bed. Furnace, rotary annealing, 12"x8". Furnaces, oil tempering, 10"x10"x10"x10". Gear and pinon cutter, No. 3 Sloan, Grinder, No. 1 LaSalle surface. Hack saws, 6" Marvel; 6" Atkins. Hack saw, Peerless, 6" univ. shaping Hack saw, 12"x12" Racine, belted. Hammer, 50 ib Little Giant, belted. Hammer, 1900 ib. Chbg., steam drop. Hoist. I no Shepard 3'490'220. Hoist, I ton Shepard 3/60/220. Hoist, I ton Shepard 3/80/220. Keyscaters, No. 0,0 & No. 2 Baker, Keyway cutter 34" Morton, cap. 22". Lathe, 14"x8" Monarch, t. a., q. c. g. Lathe, 18"x8' L. & S. sel. hd. m.d.t.a. Lathe, 18"x8' Mueller, q. c. g. Lathe, 32"x14' B. & E., q. c. g. Lathe, 16"x24' LeBlond, chuck, t. a. Lathe, iswelers, bench 4" awing. Lathe, pattern maker's, 24"x11
Miller, vertical, No. 3 Becker, cone, Miller, 18" Cincinnati, plain horiz, Millers, Nos. 3 & 4 Brown & S. univ. Millers, pl. No. 0 Y B. & S., 18x6x15". Millers, Knight duplex (2 sizes). Milling & gear cutting att. No. 5. Motors, \$\frac{1}{2}\$ h. p., 1/80/110. Motor, \$\frac{1}{2}\$ h. p. 1/60/220/600—1200 rev.

#### 58 Water St., Pittsburgh, Pa.

Motor, 5 h. p. 3/6/220/1200 r. p. m. Motor, 5 h. p. 800 v. d. c., 1500 rev. Motor, 10 h. p. a. c., 3/60/220/1740. Motor, 20 h.p. 220 v.d.c., 350/1050 rev. Motor, 25 5.p. slip rg., 3/60/220/1160. Motor, 25 h.p. silp rg., 3/60/220/116.
Nibbling mche., Cambell 6\* m. d.
Pipe machines, 2\* Jarecki; 6\* Oster,
Pipe machine, 4\* Saunders, m. d.
Planer, 30\* xio\* W. & P., 2-beads,
Planer, 0., 38\* xio\* Cleve. 3-hds.
Press, No. 3A Bliss, adj, table. resses, Nos. 3&4 Bliss, punch type. ress, C-3 Ferracute, o. b. i., plain. resses, foot, No. 87 Bliss, pendulum. Presses, foot, No. F-1 on stand.
Presses, foot, No. F-1 on stand.
Presses, No. 6 Perkins, s. s., 4000 lbs.
Presses, No. 87 Niagara, screw. Presses, No. 57 Niagara, screw, Press, b. g., s. s. bed 29:20": 7000 lbs. belt drive. Press, a. s. 66" bet. hgs, 7400 lbs; roller feed motor drive. Punch, p. 27" th. 11" 21" a. c. motor. Punch, Cleveland E. F., 46" th. n.d. Punch, Rapid, 20" th. 1" 21" s. d. Rivetter, Grant 101, cap. 5/16" m. 4. Rivetter, Grant 101, cap. 5/16" m. 4.

Riveter, Grant 101, cap. 5/16" m. d. Riveters, 1-AA, 3-A, 54-B., hispeed. Riveters, 1" Shuster rotary, belt. Rolls, bending, 32" XI" Niles, m. d. Saw, Burke, 12" blade, capacity. Saw, cold, Espen-Lucas, cap. 7° rd., Saw, shapine. 8x6 Peerless with mtr. Sawe, shapine. 8x6 Peerless with mtr. Shaper. 17° Hondes, vert. ram. m. d. Shaper. 13° Hendey, Iriction, vice, c/a. Shaper. 24° R 16° Cin. b. g., crank. Shaper. 24° G. & E., \$250. Shaper. 24° S. & M. and Steptoe. Shaper. 38° Kelly, back geared crk. Shaer. 10° x16° ga. Ohl power. Shaer. 36° x2/16° power, belted. Shear, 16° x4° Niagara. 18° gap. Shears. 36° x2/16° nower, throatless. Shear, rotary, 12° thr., cap. 10° ga. Shear, rotary, 18° throat cap. 7′ x3°. Shear, rotary, 18° ga. Yoder. 24° thr. Shears rotary bevel. 8° & \$4° Lennox. Shear, staring, 8° x16° ap. power. Saw, cold, Espen-Lucas, cap. 7" rd., Shear, squaring, 8'x14 ga. power. Shear, squaring, 60"x14 ga. Canton. Snear, squaring, 60° x16 ga, Canton, Shear, squaring, 12° x16 ga., (new), Shear, squaring, 30° x18 ga., F. & P. Slotter, 15° Dill, for motor drive. Turret, No. 4 Warner & Swasey, g. f. h., w. f.

### FOR SALE BY

### West Penn Machinery Company

1208 House Building. Automatic, No. 0 Brown & S. b. d. Air comp., 8"x6" Chicago, 31 cu. ft. Air comp., 8"x8" Bury "BB", 79 c.f. Air comp., 8"x8" Bury "BB", 79 c.f. Air comp., 2"x8" lug -4. KER 1.172. Air comp., 128"x12" fug.-R. 310 c. f. Air comp., 128"x12" fug.-R. 310 c. f. Air comp., 20"x12"x14" Sullivan, 1300' Air comp., Worth, 1500 c. f. syn. am. d. Air comp., worth, 1500 c. f. syn.m.d Bolt cutter, 2" Acme, dies, b. d. Bolt cutter, 1\(\frac{1}{2}\)" Landis, dbl. head. Bolt cutter, 1\(\frac{1}{2}\)" Landis, 3bds., m. d. Boring mill, 7-10" Betts, 2 hds. b. d. Boring mill, 10"-16" Betts, m. d. Boring mill, 16' Betts, 2 hds. m. d. Boring mill, floor type, 5\(\frac{1}{2}\) D. & H. Boring mill, 3\(\frac{1}{2}\)'' bar Rochester, m.d. Brake, 5' press type, 10 gauge. Brake, 6' hand. 16 gauge. Bulldozers, Nos. 2, 4, 6, 28, 29 & 30. Crane, electric 50-ton Case, 56' span. Crane, electric 50-ton Case, 56' span, Dieing mches, 28 & 50 ton H. & W. Drill, 21" Rockford, tap, att. m. d. Drills, radial, 24', 34', 5' and 10'. Drill, radial, 24', 34', 5' and 10'. Drill, radial, 6' American universal, Flanger, McCabe, 2" capacity, dies, Gear cutters, 11', 11'' & 36' Gleason, Grinder, radi, 1', 220', 3' ph. 60 cy. Grinder, aurface, 14' Arer Walker, Grinder, surface, 14' Arer Walker, Grander, Ook Smith, power, 35-lbs. Hammer, 80 ck smith, power, 35-lbs. Hammer, 80-lb. Bradley, cush. helve. Hammer, 300-lb. Bradley, cush. nerve. Hammer, 500-lb. Bradley, compact. Hammer, 500-lb. Beaudry, upright. Hammers, Nos. 3-B. 4-B, 4-N. Nazel. Hammers, steam, 600 lb., to 6000 lb. Jacks, 35-ton Barrett, ball bearing. Jointer, 24" Fay & Egan. Lathe, 10" Kst Son Barett, ball bearing. Lointer, 24" Fay & Egan. Lathe, 16" Kst Hendey, q. c. g. Lathe, 26" Kst Hendey, tie bar. Lathe, 26" Kst Hendey, the bar. Lathe, 26" Kst Fox, brass. Lathe, Lo-Sw., 3" Kst Fox, brass. Lathe, turret, No. 6 Warner & S. Lathe, turret, No. 6 Warner & S. Lathe, turret, 24" Steinie, 6\$" hole. Lysholm tables, 72" Kst; Miller, duplex, 24" Cincinnati auto. Miller, plain, Vo. 2-A Milwaukee. Miller, plain, No. 2-A Milwaukee. Hammers, steam, 600 lb. to 6000 lb. Miller, plain, No. 7-A Milwaukee.
Miller, plain & vert. No. 5 Ingersoll.
Miller, slab, 46"330"x20' 4 hds. m. d.
Miller, thread, 10" Lees Bradner.
Miller, univ. No. 4 B. & S. 12" d.h.
Miller, univ. No. 5 Brown & Sharpe.
Pipe machine, 2" Landis. b. d.
Pipe mchs., 6" Oster and Williams. Planer, 96"x96"x18' Ridgway, 4 hds. Planer, 30"x30"x10' Woodward & P.

Planer, o. s., 36"x36"x10' Cleveland.

motor drive ress, hydraulic, 50-ton Lourie. Press, hydraulic, 500-ton Lourie, Press, hydraulic, 1,000 ton United, Press, a. a., 13"x194", 2" stroke, Press, geared, No. 34 Toledo, Press, No. 75 Toledo, 2" stroke, Press, No. 75 Toledo, 2" stroke, Press, No. 70 Hills, t.r., 10" stroke, Toledo, db. crk, 2" str., Press, No. 93-P Toledo, db. 2" str., Press, wheel, 200-ton Niles. Fress, wheel, 200-ton Niles.
Punch, hor, Cleveland, 1" thru 1".
Punch & Sh. No. 6 L. & A. #"thru #".
Punch, multiple No. 5 H. & J. 10".
Riveter, Allen, 36", 1" rivet.
Riveting hamner, #"High Speed.
Rivet spinner, 5/16" Grant, 6" thrt.
Rolls, angle, 4xsff Williams & W. Rolls, bending, 8'x14 ga. hand. Rolls, bending, 8'x1" Hilles & Jones drop end Rolls, bending, 10'x\(\frac{1}{4}\)" Cleveland. Rolls, bending, 32'x\(\frac{1}{4}\)" Niles. Saw, cold, No. 666 C. & B. 28" blade. Saw, cold, 48" Newton, m. d. Saw, frict. Model 1-A Hunter, 24". 

Straightener, 60" Nat. 14 ga. 17 rolls. Straightener, H. & J. 48"x\(\frac{1}{2}\)" & rolls. Straightener, H. & J. 48"x\(\frac{1}{2}\)" & rolls. Straightener, Phila., 7'x\(\frac{3}{2}\)", & rolls. Straightener, No. 4 Hilles & Jones. Swaging machine, No. 3 Langelier, Testing mch., 100,000-lbs, Olsen, m.d. Upsetters, 1" to 6".

Upsetter, 14"Acme, b.d., steel frame. Upsetter, 24"Acme, m.d. steel frame.

Welders, spot and butt.

Planer, o. s., 38"x36"x16" D. & H. Planer, rotary, 48" Niles, m. d. Press, arbor, No. 7 Greenerd. Press, o. b. i. Ferracute Cl. 3" st. Press, o. b. i. No. 3 Toledo, 2‡" st.

Pittsburgh, Pa.

### FOR SALE BY

#### Randle Machinery Co., 1733 Powers St., Cincinnati, Ohio

Air compressors, all sizes and types. Bending rolls, all sizes.
Boring mill, 24" Bullard r. p.
Boring mill, 51" & 60" Bullard.
Boring mill, 90" Niles. Bolt cutter, 2" Acme, Class A double. Bolt pointer, 1" Acme, Class A. Brake, 10'x3/16" D.& K. m.d. press. Buffing mche., No. 3D Gardner m.d. Drills, all sizes and types Drinis, att sizes and types. Gear hobbers, 12" Hercules. Grinder, No. 14-20" Gardner. Grinder, No. 24-53" Gardner, Keyseater, No. 9 Catlin. Lathe, 24"x14" Wickes geared head. Lathe, 32"x12" Lodge & S. q. c.

Also many other items. Send us your inquiry.

Lathe, 42"x12' s. b. s. q. c Miller, No. 5 B. & S. vertical. Miller, No. 3B Milwaukee plain. Planer, 36x36x12' D. & H. openside. Pipe machines, all sizes and types. Punch and shear, Nos. 4 and 6 Long & Allstatter universal. Shaper, 16" to 24" b. g. Shear, 10'x14 ga. Stoll m. d. Shear, 6'x14 ga. Robinson. Shear, 10'x3/16" L. & A., m. d. Shear, Southwark rotary, No. 8 ga. Welder, 150 and 200 amps arc. Welder, 20 & 40 k. w. Toledo spot. Wheel press, 150 to 300 tons.

### FOR SALE BY

### Strafer Machinery Company,

14th and Provost St., Jersey City, N. J. BORING MILLS

10' Pond geared feeds.

24" Bullard v. t. l. rap. prod. 51" N.-B.-P. single pulley drive. 42" Niles, car wheel borer, 34" Colburn turret head. No. 1 Cleveland horizontal s. p. d. DRILLS, RADIAL.

GEAR CUTTERS 5' Prentice speed box, m. d.

No. 6 Cincinnati 60"x20" m. d. No. 5A. Lees-Bradner a. c., m. d. GRINDERS

16"x52" Landis self-contained. No. 8 Badger disc, 30" wheel. Walker vertical surface. 6"x32" Norton, overhead counter

KEYSEATERS, rive. | No. 4 Mitts & Merrill extra equipt. No. 5 Mitts & Merrill belt drive. ATHES.

60"x21' Pond, t. g. 40"x22' Prentice, blocks and chucks, 42"-70"x16' Fay & Scott slide gap, 42"x38' Niles t. g. belt drive, 36"x32' Putnam geared head m. d. 24"x18' Prentice g. h.

MILLING MACHINES P. & W. planer type 24"x24"x9' 2 hd. No. 2 LeBlond heavy. No. 2 B Kearney & Trecker s. p. d

400 ton W. S. hydraulic 73"x20'. No. 2 Bliss double crank.

Ferracute s. r. g. 103 geared. 24" Smith & Mills b. g. belt drive. 24" Gould & Eberhardt m. d

10' Geo. Ohl sq. shear. \" cap. 8' L. & N. 16 ga. foot power

Beading machine, Bliss. Boring bars, portable, 4"x8'. Compressor, Ingersoll-Rand 8"x6". Chuck jaws set for boring mill. Drill. Rockford right angle horiz,

ES.
42"x14' Bridgeford geared head.
32"x14' American, taper attachment.
18"x13' National g, h.
24"x12' Lodge & Shipley.
16"x10' P. & W. geared head, t. a.
21" Gisholt turnet lathe.

No. 3 Becker vertical. No. 3 Cincinnati vertical.

No. 2 Kempsmith. PRESSES. No. 87 Zeh & Hahneman arch. Stiles inclinable equal 21 Bliss. 70 ton Hanna riveter, 75" t.

SHAPERS Gould & Eberhardt cone type. 20 16" Gould & Eberhardt cone type. m. d.
SHEARS AND ROLLS.
"cap.
8' Niagara 3/16" cap.
Yoke riveter, Hanna, 75" reach 12 cap.

MISCELLANEOUS. Generator, 100 k. w., a. c., Diesel. Hack saw, 6" Peerless.

Lathes, Oliver pattern, slide gap. Pipe machine, 6" Saunders with dies. Wire straightener, core, to 5/16".

### FOR SALE BY

The Reeve-Fritts Co., 558-560 W. Washington Blvd., Chicago, Ill.

Boring mill, 24" Cleveland hor., m.d. Borneg mill, 2\* Cleveland nor., m.d. Drill 14\* Leland h. s., tapping att. Drill, 3-sp. Washburn b. b., pr. feed. Drill, 8-spindle Heury & W. h. s. Grinder, disc, 20\* Ransom. Lathe, 9\* 74\* Dalton motor drive, Lathe, 14\* x6\* Hendey q. c. g.

Lathe, 14"x8' Champion q. c. g. Miller, No. 2 Ohio univ. motor dr. Planer, 24"x24"x6' American. Rivet spinner, 5/16" Grant. Screw machine, No.2 Foster fric.hd. Shaper, 16" Smith-Mills b. g. Shaper, 20" Ohio h. d., b. g.

#### FOR SALE BY

### Wm. C. Johnson & Sons Machinery Co.,

St. Louis, Mo.

1211-1223 N. 12th St., BOLT THREADERS Landis double head.

14" Landis. BORING MILLS.

51" Niles, 2 sv

34" Gisholt turret vertical. 36" Niles, 2 heads. 42" Bullard, 1 turret, 1 plain head. 51" Niles, 2 swivel heads. No. 1 P. & H. boring and drilling

machine: DRILLS.

3' arm American, motor-driven. 1-spindle Avey. arm Niles half-universal. 2-spindle Allen.

2-spindle No. I Avey, ball bearing. 14" Mason high speed. 20" Champion. 3-spindle Avey. 4-spindle Leland-Gifford.

22" Barnes back geared. 25" Barnes back geared. 8-spindle Bausch. 32" Prentice sliding head.

GRINDERS. No. 1 Wilmarth & Morman univ.

Greenfield universai. 12"x60" Landis universal. Wells Bros, universal. LATHES

14"x10' Lodge & Shipley, q. c. g. 16"x 8' Lodge & Shipley, q. c. g. 16"x 8' Lodge & Shipley, q. c. g. 16"x 8' Lodge & Shipley, q. c. g. 24"x10' LeBlond. 24"x12' Boye & Emmes q. c. g. 24"—42"x14' S. & B. 2-spindle. "-48"x16' McCabe 2-spindle, hvy. 26 30"x15' Lodge & Shipley, q. c. g. 35"x18' Prentice. 16"x6' Sundstrand tool room, t. a. 16"x6' American geared head, t. a.

MILLERS No. 1 U. S. hand. No. 3 Rockford hand. No. 0 Burke bench. No. 2 Le Blond universal, No. 2 Kempsmith plain.

No. 14 Kempsmith plain.

No. 5-B Brown & Sharpe.
PIPE THREADING MACHINES.
1 4" Jarecki. 1‡" Landis. 2" Landis. 2" Bignall & Keeler. 6" Jarecki.

PRESSES No. 3 Toledo. No. 24 Toledo cam drawing. Stiles & Parker drawing. No. 723 Toledo cam drawing.

No. 14 Bliss toggle.
SCREW AND TURRET MACHINES.
Wood turret lathes. No. 4 Foster screw machine. Wood turret lathes. No. 6-A Potter & Johnston. No. 6 Brown & Sharpe. No. 2 Warner & Swasey hollow hex. 3"x36" Jones & Lamson.

No. 2 Warner & Swasey screw mche. SHAPERS AND PLANERS. 12" G. & E. crank shaper. | 32" Cincinnati shaper. | 16" Smith & Mills shaper. | 42" x42" x26" Wheeler planer. | MISCELLAN EOUS.

Bar shear, 5"x1". Hammer, 60 lb. Bradley helve, Hammer, 600-lb. steam. Punch, No. 14 W. W., 12" throat. Punch, 26" throat, \( \)" in \( \)". Riveter, \( \)" Shuster. Saw, No. 17 Higley cold. Tapper, auto., Rickert & Schafer.

### FOR SALE BY

Mid-West Machine Tool & Supply Co.,

Davenport, lowa

Grinder, 10"x36" Norton, Grinder, 10"x52" Landis, s. p. d. Grinder, 54" Gardner vert. disc. Grinder, No. 10 Brown & Sharpe, Grinder, No. 22 Heald rotary surf.

Hobbers, Nos. 3, 12-B & C. Lathe, No. 9 LeBlond multi-cut. Millers, Nos. 1 & 2 Brown & Sharpe. Radials, 3' Cincinnati Bickford. Turret lathe, No. 6 Warner & S.

Partial list; send us your inquiries.

### FOR SALE BY

Wachs-Gregg & Co.

Telephone: Randolph 1822 Boring machine, Giddings & Lewis No. 32. Boring mill, Bullard 60" Broaching mathine, La Pointe No.4. Drill, Allen 3-spindle sensitive. Drill, Cincinnati Bickford 3' radial, Drill, Foote-Burt 24" heavy duty. Drill, Harrington, 61 B, multiple. Drill, Henry & W. 4-spdl. sensitive. Drill. Pratt & Whitney No. 12 mult. Fox lathe, Warner & Swasey No. 3. Grinders, Nos. 486 Badger disc. Grinder, No. 6 Modern internal.

117 N. Jefferson St., Chicago Lathes, Rockford 14"x6' and 16"x8'. Lathe, Sidney 17"x8' q. c. g. Lathe, Whitcomb-Blaisdell 18"x8'. Milling machine, Cinn. No. 2 univ. Planer, Belmer, 48"x48"x12', 3 hds. Planer, Whitcomb 28"x26"x8, 2 hds. Planer, Whitcomb 26"x26"x8, 2 hds. Press, Bliss-Cons. No. 3 o. b. i. Presses. Niagara Nos. 3-45-54 o. b. i. Screw machine. Foster No. 4.
Shaper, Cincinnati 16" cone.
Shaper, Walcott, 20" power d. f.
Turret lathe, Pratt & Whitney #"x44" Turret lathe, Warner & Swasey No. 2 A.

#### FOR SALE BY

The O'Brien Machinery Co.,

Lathe, Bradford 32"x18'.

Bending roll, 25' H. & J. † cap. Boring mill, horiz. 3" Rochester, motor drive, rapid traverse. Drill, 20-spindle Natco, No. 2 taper. Drill, 4' Cincinnati Bickford radial, motor drive

Gruder, No. 11 B. & S. cyl. 6"x30". Grinder, No. 2 B. & S. surface, with chuck and generator. Hammer, No. 1 Nazel belt drive, capacity 2"x2".

Hammer, 2000 lbs. Chambersburg, double frame, steam forging. Hammer, 1100 lb. N. B. P., sgl. fr. Lathe, 18"x8" American. Lathe, 19"x8" Sidney heavy duty,

belt drive, quick change. Lathe, 36"-60"x32' McCabe, belt

Lathe, 48"x16' Lodge & Shipley, all geared head. athe, 30"x30' Harrington.

Miller, No.3 Becker universal, table 12"x40"

Miller, No. 4 Brown & Sharpe plain. Milling mche., No. 3 Garvin duplex. Pipe machines, 2", 4", 6", 8" & 12" Oster, Cox, Williams, Eaton-Cole & Burnham and Jarecki makes, belt or motor driven, comp. stock.

Pipe machines, Oster portable, gas. drive, all sizes.

113 N. Third St., Philadelphia, Pa. Planer, 42"x42"x12' Cincinnati, mtr. Flaner, 42"×42"×12" Cincinnati, mtr. drive, 4 heads, rapid traverse. Planer, 36"×12" Cincinnati, 2 hds. Press, No. 37 Niagara, 1100 lb. fly-wheel, solid back. Press, No. 123 Ferracute, geared, double acting, flywheel 475 lb. Press, DD3 Ferracute, dbl. acting. Punch, No. 52 Beloit, belt, capacity 4"x2" Punch, No. 14 H. & I. 20" thre 3-24

p"xl" No. 1½ H. & J. 20" thrt., x2 Punch and shear, 36" Hilles & Jones, cap. 1½"x1", belt drive. Punch and shear, x4" Southwark arch jaw, cap. ½"x1", motor drive. Saw, 30" Espen-Lucas, cap. 8". Shaper, 20" Steptee, gear box drive. Shaper, 24" Gould & Eberhardt, belt drive.

Shear, angle, Type C Long & A. double, capacity \$x8x1 angles.

Shear, No. 16 Pels, combination,

motor drive. Shear, Niles, plate splitting, 1" capacity, motor driven. Shear, 8' Covington, squaring, gap

pattern, "capacity. Slotter, 10"-12" Dill, belt drive. Turretlathe, No. &Warner & Swasey

wire feed.

### FOR SALE BY

	<ul> <li>947-953 N. Front St., Philadelphi</li> </ul>	
Boring mill, Bement-Miles	horiz. 4-#" bar with revolving table	2.200
Boring mill, No. 1 Sellers,	horizontal 21" bar	150
Boring mill, 60" Niles car w	rheel	250
Boring lathe, Johnson journ	nal bearing boring type (2) each	125
Drill press, 48" Almond, ser	nsitive radial, post type	125
Drill, press, 24" Foote-Burt	, heavy duty	300
Grinder, disc, No. 17 Besly.	***************************************	200
Lathe, 28"-50"x13' Harring	gton extension gap	675
Lathe, 37 x14' Johnson, d	. b. g., q. c. g., taper attachment.	1.200
Lathe, 32"x12' Pittsburgh,	heavy duty, d. b. g., q. c. g	1,000.
Lathe, 27"x12' Bullard, d. l	D. g., q. c. g	500.
Lathe, 26"xll' Wickes, d. b.	g., q. c. g	550.
Lathe, 28"x10" Niles, d. b.	g., q. c. g	500.
Milling machine, No. 3 Bec	ker, universal with vert. attachment	700
Moulding machines, Tabor,	, 14"x21"-13" cylinder (7) each	100
Planer, 48"x48"x12' Gray, 2	heads	1,450.
Presses, Waterbury-Farrel 1	D. A. 21"-5" str., wt. 26000 lb. new (3) ea	1.000.
	72", 15" throat, max. cap. 96" long	1,600.
Punch presses, all sizes (15)	) steam pumps, air compressors & engines	
	p Il" rivets	400.
Riveter, air, 6' gap Allen, c	ap 🚰 rivets	200
Turret lathe, 3x36" Pratt &	Whitney, hollow hex, d. b. g., q. c. g	
Turret lathe, 34"x28" Pond,	triangular pattern	500.
Many addition	al tools. Send for complete catalog.	

FOR SALE BY		
BORING	MILLS.	
36" Bullard New Era	42" Bullard vertical.	
	AND GRINDERS.	
No. 13 B. & S. 18 'x4", for spur and bevel.	No. 13 B. & S. universal and tool. No. 3 B. & S. cutter and reamer.	
No. 3. 26"x8" B. & S. spur.	18" Diamond disc.	
No. 2 Bilton.	No. 4 Diamond surf., 60"x12"x12".	
No. 1 B. & S. universal grinder. MILLING M	CACHINEC	
No. 13 B. & S. plain.	No. 0 Brown & Sharpe plain.	
No. 2-V Brown & Sharpe plain.	Model "AB" Becker vertical.	
No. 4 Van Norman duplex.	No. 0 Bristol hand.	
PLANERS AN		
60"x60"x16' Niles-BP., 2 heads.	16" Stockbridge shaper, plain.	
60"x84"x16' Gray, 4 heads.	16" Queen City shaper, plain.	
	AMMERS.	
40 lbs. Bradley cushioned helve. PRESSES, POW	80 lbs. Bradley cushioned helve.	
No. 8-C Bliss, s. s., d. c. 16" stroke.	No. 73-4-B Bliss.	
No. 6 E Bliss, s. s., d. c., 8" stroke.	No. 21 Bliss, geared, motor driven.	
No. 6 E Bliss, s. s., d. c., 8" stroke. No. 5 Bliss, s. s., d. c., 6" stroke.	No. 3 Manville d. a.	
No. 93-C Toledo, 6" stroke.		
ROLLING !		
91"x14" McWilliams. 3"x5" Blundell.	2"x4" Willetts. 12"x20" toggle mill.	
SCREW MACHINES	B TITEDET I ATHES	
No. 00 Brown & Sharpe automatics,	No. 4 Warner & Swasey g. f. h.	
with slotting attachment.	16" Warner & Swasey 1".	
No. 0 Brown & S. wire feed hand.		
MISCELL	ANEOUS.	
Arbor press, No. 4 Greenerd.	Lathe, 24"x27' Fitchburg.	
Blower, No. 5 Leiman p. p.	Lathe, 23"x16' LeBlond q. c g.	
Blower, No. 8 Boland p. p. Drill press, 2-spdl. Prentice.	Lathe, 9" Porter-Cable production. Slotter, 12" Bement-Miles.	
Drill press, 4-spdl, Barnes, p. f.	Stotter, to Dement-Mines.	
security and a state to property of the co.		

### FOR SALE BY

Chas. Molitor Machinery Co., 118-124 S. Clinton St., Chicago, Ill.

A. C. or D. C. motor driven machines, 99% new. Drill, #" capacity Demco high speed.

Drills, No. 1 Leland-Gifford 3-spindle; No. 2 Leland Gifford 6-spindle,

Dring, No. 1 Letand-sifted a-spindle; No. 2 Letand Giff. Filing machine, S-No. 5 Gliver, on foundation. Lathes, H'x6' Davis; 18''x6' Sebastian quick change gear. Miller, No. 2 Ohio vertical, rot. attachment. Miller, No. 2 high power universal. Shaper, 14' Steptoe crant.

100 other high grade modern machines. Write for machine tool list

### FOR SALE BY

### Norton-Broadway Mchy. Co., Sixth & Baymiller Sts., Cincinnati, O.

LATHES.

36"x22' American, 5 step, s.b.g.,q.c. 30"x16' Niles-Bement-Pond, l. c. 30"x14' Prentice q. c. 27"x14' Pond, q. c. 21"x12' LeBlond, q. c.

26"x48"x10' McCabe double-spindle.

MILLING MACHINES. No. 3 LeBlond plain.

No. 3 Cincinnati, single pulley. No. 4 Brown & Sharpe sgl. pulley.

No. 4 Cincinnati universal. Bickett No. 1 vertical.

No. 2 Cincinnati universal. BORING

24" Bullard rapid prod. New Era hd. 34" Bullard New Era.

36" Niles, 2 heads. 42" Niles-Bement-Pond, 2 heads

24"x24"x6' Ohio.

24"x 24"x 6" Onto, 2 heads, 24"x 6" Potnam, 36"x36"x12" D, & H. o. s., 3 heads, 26"x36"x12" D, & H. o. s., 3 heads, 26"x8" Amer ADIALS AND RADIALS 4" Mueller, 1" Mueller, 1"

2 and 3-spindle Henry & Wright.

4 and 2-spindle Sipp. 1 and 2-spindle Kokomo hi-speed. No. 310 Baker heavy duty.

Foote-Burt heavy duty. 6' and 5' Americans, single pulley. 4' Cincinnati-Bickford, motor drive

Bending rolls, 8'x Bement-Miles, a. c., 220 volt motor drive. Bulldozer, Williams-White

Bulldozer, Williams-White.
Compressor, 13/8/10 Worthington,
Crane, 10 ton Case, three motor.
Crane, 5 ton P. & H., three motor.
Cranes, 3† ton Case, (2).
Gear hobber, Farwell No. 3.
Gear hobber, 14" G. & E. sgl. pulley.
Grinders, Norton & Modern cyl.
Grinders, disc No. 120 Gardner.

Grinder, Bryant internal Grinders, planer type Brown & S. and Springfield Grinder, No. 2 Reid surface (no

magnetic chuck). Hack saw, 8x8 Racine, 3 speeds.

21"x10' LeBlond q. c. 20"x8" Whitcomb-Blaisdell, grd. hd.

20"x8" Whitcomb-Blaisdell, gru, n 18"x8' Cincinnati, q. c. 18"x8' Mueller q. c. 17"x8' LeBlond, q. c., taper. 11"x22" centers Artisan gap, m. d.

No. 4 Cincinnati vertical. No. 4 Cincinnati vertical with a. c.

motor, complete. No. 2 Cincinnati vertical.

Owen two-spindle. 24" Newton rotary planer or miller.

MILLS 10-16' Niles, 2 heads. Rudolph & Krummel horizontal.

Niles horizontal. Niles, 2 heads.

PLANERS. 30"x 16' Gray, 2 heads. 48"x10' Belmer, 4 heads.

30"x6' Gray. 26"x8' American.

4' Mueller, single pulley.
4' Morris, with motor.
4' Roos & Mill, single pulley.
20" to 38" uprights.

Fox multiple, head 32"x45", Type 5, gear box drive.

MISCELLANEOUS.

Hack saw, 6x6 Racine. Press, 20 ton Lourie hydraulic, Press, No. 2 V. K. & V. inclin inclinable. Punch & shear, No. 04 L. & A. s. e.

Punch & shear, No. 04 L. & A. s. e. Riveters, Lattice air; also several Allen pinch bug type. Rolls. 7 long, § capacity.
Saw. Ryerson friction, motor drive, 30 h. p. motor, 60 roller feed way.
Shear, universal angle, Long & A. turntable type, capacity 6 "a6" x1"

angles, motor drive.
Slotter, 20" Dill.
Turret lathe, 21" Gisholt, motor.
Turret lathe, No. 4 Warner & S.
Turret lathes, 6 "Gisholts, with motor.

### FOR SALE BY

E. L. Klauber Machinery Co.,

Blowers, Sturtevant; Nos. 8, 9 and 10.

Drill, Demco d. b., hi-speed.
Drill presses, 10" to 34".
Grinder, B. & S. universal 8"x16".
Grinder, No. 12 Modern plain cyl. Grinder, twist drill, American. Lathe, 11x5 Monarch q. c. g.

Lathe, 14x6 Carroll-Jamieson q.c.g.

with 3 chucks.

with 3 Chucks.
Lathe, 14x6 Davis tool room.
Lathe, 18x6 Rahn Larmon.
Lathe, 18x8 National q. c. g.
Lathe, 30x14 Bradford; \$475.
Milling machine, No. 12 Cincinnati

universal. Planer, 20x20x4 Lathe and Morse.

Planer, 20x20x4 Latne and Morse. Punch press, No. 2 Toledo o. b. i. Punch press, No. 19 Bliss o. b. i. Screw machine, Gridley 1\(\frac{1}{2}\)''. 4-sp.

320 South Third St., St. Louis, Mo.

Screw machine, No. 0 Brown & Sharpe automatic.

Screw mchs., No. 2 Garvin; p. f. t. Screw machine, Wood tilted turret,

geared friction head, p. f. t.
Screw machine, No. 36 National
Acme 4-spindle automatic.

Screw machine, No. 0 Brown & Sharpe semi-automatic. Screw mch., No. 2 Wood tilted tur. Shaper, 16" Smith & Mills.

Shaper, 20" Gould & Eberhardt, b.g.

Snaper, & Gound & Ellerhard, U.g., Square shear, power, 12 light \$150. Tapping machine, No. 4 St. Louis. Tapping machine, Rickert-Shafer. Tapping mache, No. 1 Garvin auto. Tapping mache, No. 1 Garvin auto. Tur. lathe, No. 4 Wood, i.g.h., p.f.t. Welder, appt; National 25 k. w.

### FOR SALE BY

Davis Machinery Exchange, 1-3-5 So. St. Clair St., Toledo, Ohio

Bolt threader, \( \frac{1}{2}'' \) Landis dbl. head. Bolt threaders, \( \frac{1}{2}'' \) and \( 2'' \) National. Boring mill, \( 24'' \) Bullard vertical,

Boring mill, 34" Bullard vertical, new era head. Brake, 6" Chicago, cap. 16 ga. Drill, 20" Barnes camel back. Drill, 20" Barnes, 4-spindle. Drill, No. 310 Baker hvy, duty, (2). Drill, 3" Carlton radial, g. b., a. p. d. Drill, 3" B ckford radial, g.b., sp. d. Drill, 3" gang radial, tapping attach-

ment, universal table.
Drill. 24" Cincinnati s. h., b. g., p.f.
Drill, 16" Kern hi-speed.
Drill, 2-spindle Allen sensitive.

Drill, 6-sp. Nat. Acme horizontal, Drill, 6-spdl, H. & W., h. s., b. b. Grinder, No. 2 Gardner disc, comp. Grinder, No. 4 Gardner disc comp. Grinder, No. 4 Gardner disc, 15 h.

p. motor drive. p. motor drive. Grinder, No. 4 Oliver drill pointer, Grinder, No. 14 Brown & S., plain. Grinder, 10"x36" Landis pl. self-con. Grinder, No. 60 Heald cylinder. Groover, 42" Toledo power.

Groover, 42" Toledo power.
Hack saw, 6x6 Racine.
Hammer, M. Schuster riveting.
Hammer, No. 18-B High Speed
riveting, m. d.
Keyseater, No. 9 Mitts & Merrill.
Keyseater, No. 9 Baker.
Keyseater, No. 9 Mitts & Merrill.
Lathe. 19"x10" sinner q. c. g.
Lathe, 16"x8" Monarch q. c. g., chuck
Lathe. 16"x8" Monarch q. c. g., chuck
Lathe, 16"x8" Mational q. c. g., chuck
Lathe, 12"x8" National q. c. g., chuck
Lathe, 12"x8" Mational q. c. g., chuck
Lathe, 18"x8" American q. c. g., chuck
Lathe, 18"x8" American q. c. g.

Lathe, engine, 18"x7' Lehmann, q.

C. g., chuck.
Lathe, 18"x16' American q. c. g.,
taper and relieving attachments.

taper and relieving attachments,
Mill, No. 1 Kempsmith universal.
Mill, No. 2 Rockford universal, index head, complete.
Mill, No. 11 Becker-Brainard uni-

versal, complete. Mill, No. 11 Cincinnati plain, all geared feeds.

Mill, No. 0 Steptoe, p. f. Mill, No. 2M Potter & J. horizontal.

Mill, A. B. Becker vertical, Mill, No. 2 B. & S. vertical, s. p. d. Mill, No. 2 B. & S. vertical, s. p. d. Mill, No. 6 Whitney hand. Mill, No. 12 B. & S. production, (2), Miller, No. 1 Toledo b. b. hand (2), Milling and drilling machine, No. 12 Knight.

Oil groover, Fisher.

Oil separator, American.

Press, Arbor, No. 3 Greenerd.

Press, No. 4 Adriance o. b. i.

Press, No. 4 Toledo o.b. i., flywheel.

Press, No. 5‡ Consolidated o. b. i.

Press, P.3 Ferracute s. b., flywheel.

Press, P.3 Ferracute s. b., flywheel. Press, No. 8 Bliss, bench type (5). Press, No. 81 Consolidated, bench. Press, 40 ton Manhattan screw

Press, 40 ton Manhattan screw Screw machine, No. 6 Warner & S. Screw machine, No. 7 Foster, Screw machine, No. 4 Foster, Shaper, 16" Smith & Mills, crk., b.g. Shaper, 20" Cincinnaticrank, b. g. Shaper, 24" Milwaukee cr., bk. grd. Shear, No. 184 J. M. Robinson pwr. square. cap, 36" x18 gage.

Welder, 50 k, w. Taylor spot, 440 v.

### FOR SALE BY

### Taylor-Hall Welding Corporation, 99 Hope Ave., Worcester, Mass. WELDERS

Toledo No 306 seam welder. Taylor D-36-4, 40 k. w. spot welder. Thomson 35 k. w. spot welder. Taylor-Winfield 2 k. w. spot welder. Acme 5 k. w. spot welder. National 8 k. w. spot welder. Winfield 20 k. w. spot welder.
Winfield B50SA, butt welder, cap. #"
National 15-A butt
National 15-A butt
National 15-A butt

Thomson 7A automatic butt welder. capacity \".
Toledo 8B butt welder, cap. \". Thomson No. 3 butt welder, cap. 4" National 11-A butt welder, cap. 2 Toledo No. 6 butt welder, cap. 1". National 15-A butt welder, cap. 24".

#### FOR SALE BY

### Foster Machinery Company, Air compressor, 4x5 Ingersoll-Rand,

class ERI Bending rolls, 8'x2" Pyramid drop end. Brake. 6', 10 ga., box and pan Draw bench, 12' Waterbury-Farrell. Hoists, elect., 3, 5 & 10 ton Euclid. Keyseater, Baker No. 0, cuts 1" keys.

Lathe, 20"x9\(\frac{1}{2}\) American geared hd., d. c. motor drive. Lathe, 16"x10' Whitcomb& Blaisdell q. c. g.

2613 E. 73rd St., Cleveland, Ohio

Lathe, 19"x12' LeBlond heavy duty plain turning. Punch, EF Cleveland, 72" throat, motor drive. Riveters, Nos. 2-A and 3-A High

Speed. Riveters, air, 30 ton & 50 ton Hanna 12" throat

Rotary planer, 50" Cleveland. Shaper, 24" Gould & Eberhardt high duty. Shear, 12'x14 ga. Loy & Nawrath. Turret lathe, No. 3-A Warner & Swasey univ., chucking equipt.

### FOR SALE BY

#### Brandt Machinery Company, 50 Penn Ave., Pittsburgh, Pa. CRANES.

10 ton 78' span Morgan 220 v. d. c. 10 ton 50' span Morgan 220 v. d. c. 30 ton 50' span Morgan 220 v. d. c. 10 ton aux. 25 ton 50' span Morgan 220 v. d. c. 5 ton aux. 10 ton 40' 3" span Alliance 220 v. d. c. 10 ton 62' span Alliance 220 v. d. c.

Arbor press, 30 and 15 ton \$7' 6" is Arbor press, 34 Greener, 4. Gending roll, 8' x\text{g" d. e., pyr., type. Bending roll, 16' x\text{g" M. e., pyr., type. Bending roll, 12' x\text{g" H. & J., d. e., motor drive. Bending roll, 12' x\text{l\text{g"} Niles, d. e. Bending roll, 12' x\text{l\text{g"} Niles, d. e. Bending roll, 16' x\text{g" Niles, d. e. Bending roll, 16' x\text{l\text{g"} Niles, d. e. Bending roll, 16' x\text{l\text{g"} Niles, d. e. Southwark, Southwark,

Bending roit, is xig Douinwark, s. e, pyr.
Bend, roil, ??'xi\footnote{\text{M}}' Southwark, d. e.
Boring mill, \text{No. I Cleve., 2\footnote{\text{M}}' sold.
Boring mill, \text{M}' bar Niles, floor,
Bulldoares, Nos. 2, 3, 6, 367, 387, 29U.
Forging machine, \( \frac{\text{M}}{2} \) \( \frac{\tex

10 ton 62' span Alliance 220 v. d. c.
10 and 15 ton 37' 6" span Morgan 220 v. d. c.
14 Greenerd.
15 4" Wickes, d. e.
16 17 4" Niles, d. e.
16 18 14" Southwark d.
16 18" Southwark d.
18 18" Southwark d.
18 18" Southwark d. Press, 68F Niagara, doi. Craus., 87-Press, 359 ton Southwark, 4 col. Press, 259 ton Wood hydraulic. Shear, 12/x14 ga. L. & N., under dr., Shear, guill., 2' and 39' sq. Cleve. Turret, No. 6 Foster, friction head. Turret, 3'x85' J. & L., 6bl. spindle. Testing mche., 100,000 lbs. Riehle. Use. Responsible to the spindle of Vise, Boston universal (new) \$75.00. Welder, No. 40 Winfield, butt, #" rd. Welder, 200 amp., Hanson (bargain)

L

What have you for sale?

### FOR SALE BY

Syracuse Supply Company. 314 W. Fayette St., Syracuse, N. Y.

Guaranteed new machines at prices below list: Arbor, No. 54-B; K. & T. \$20 00. Chuck, Simmons magnetic, 31x101 \$200.0u.

Drill, No. 9 Natco, compound table, arranged for belted motor drive.

Band saw, 36" Crescent inc., c. s. Bolt threader, Acme 2 spindle \$125. Drills, Dreses 5' radial (2). Jointer, 12" Crescent inc., Lathe, 16x6 Fitchburg \$125. Lathe, 18x10 Reed \$350. Lathe, 28x12 Draper.

Drill, No. 9 Natco Minster. Grinder, No. 1 Bath universal. Jointer, 12" Whipp \$300. Threading mch., No.74 Forbes \$170. Vise, No. 3 Royersford production. Exceptional values in used tools:

Lathe. 22x26 Pratt & Whitney. Miller, Wisconsin hand, \$125.00.
Press, No. 3 Niagara, nearly new.
Rip saw, No. 2‡ Powers, self feed.
Screw machine. No. 2‡ Garvin auto.
Turret lathes, No. 4 Foster, (2).
Turret lathe, No. 6 Wood tilted tur.

### FOR SALE BY

#### McDonald Machinery Co., 1531-33 N. Broadway, St. Louis, Mo.

Arbor presses, Greenerd Nos. 3-A, 34, 4; Atlas No. 5. Boring mill, Barrett5" horiz.; Lucas

No. 31 horiz., 24".
Boring mills, 4 Bullard 42" low price,
Brake, D. & K. 6' 10 gauge, power.
Chucks, 25, new, 5" to 22", special

Cut-off mchs., 4 Davis 6" capacity. Drill, Moline 4-spindle and 32-spdle. Drill presses, Allen and Sipp 4-spdl.,

h. s., b. b. h. s., b. b.
Drills, Leland-G I-sp. h.s., b.b. floor,
Drills, H. & W. 4-sp., h.s., b.b., Sippl
I-spdl., h.s., b.b., H. & W. 2-spdl.
Drills, 20°, 24°, 28 & 28° b, g., & tap.
Gear hobber, G. & E. 24°
Grinders, B. & S. No. 2 and B. & S.

No. 13 universal. Grinders, Landis piston, motor dry, Grinder, Heald No. 60 cylinder.

Grinders, modern internal; Blount 30", wet (3), Heald 8" mag. ck.; Landis No.1‡ int., Landis 16"x42". Grinders, St. Louis No. 9; Modern 12"x60".

13 xee.

13 xee.

13 xee.

14 xee.

15 xee.

16 xeed. Prentice vert. surf.,

17 xee.

18 xee.

19 xee.

10 xee. Grinders, Besly & Norton d e. disc. Hack saws, 4x4, 6x6 & 2 Racine Jrs,

Hack saws, 4x4, 4x8 & Z Racine Jrs, Racine 8x8 h. s.; Atkinis 8x8 s. h. s. Hammers, Bradley 40 lb. helve; Lathes, Hendey 14"x8" o. c. g. yoke head; Davis 22"x10" o. g. g.; Sidney 16"x6" o. c. g. Le Blond Monarch 16"x8" c. C. & J. 44"x8": Superior 18"x8": C. & J. 44"x8": Superior 18"x8": C. & S. & Cinti, 16"x6", q. c. g.; Walcott 20"x12" s. p. d., q. c. g.; geared head; all s. p. d., q. c. g., geared head; all quick change grd :40 assorted sizes,

quick and loose change gear Lathes, Fitchburg 24"x18'; Greaves-Klusman 24"x16'; all standard chg.

Milling machines, Ohio No.20 plain, Le Blond No 3-H plain; Brown & S. No. 3 plain; B. & S. No. 3 Bpl., s. p. d.; American No. 11 plain; S. p. d.; American No. 17 plain; Cincinnati No. 3 plain; Becker No. 25 plain, Kemp No. 3 univ.; Cincinnati No. 17 univ.; B. & S. No. 2 plain; Becker Nos. 2 & 3 vert.; Ohio No. 25 heavy: Ohio No. 24; Ohio No. 29 univ.; B & S. No. 5 vert ; Van Norman No. 2 duplex.

Milling and drilling mchs., Knight No. 12 with power feed.

No. 18 with power feed. Pipe machine. Curtis 3", motor dr.; Merrill 4"; Curtis 28" to 12" m. d. Planers. Gray 28"x28"x6". I head; Cincinnati 36"x36"x18" 2 heads; Pond, 36"x36"x12" table, 18' bed, 2 heads; Withcomb 30"x30"x8';

Cincinnati 24" x24" x6'
Punches, Reade 15" s. e., 4" in 4".
Punch presses, 4 Consolidated No. 2; Holden No. 58; (2) Federal Nos. 1.

Holden No. 58: (2) Federal Nos. 1, 2, 3 Bliss No. 18-C, ob. i Federal No. 4: Bliss No. 18: Rockford Nos. 2 and 3: Con. No. 3 o. b. i. Screw machine, Cleveland 2½ auto.; P. & W. No. 2‡ hand; Foster No. 3 hand; 8 Woods Nos. 2 and 3 tilted turret, (new); Milholland b. g., hand; Foster No. 7 hand b. g. Shaper or slotter, vert. P. & W. 6". Shapers, S. M. 16"; 24" Queen City 24" back, Searcel; Rockford 2½" b. g., s. p. d.; G. & E. 16", b. g.; Niles traveling head; Milwaukee 16" b. g.; Walcott 20" b. g.; S. & M. 24" and 24" b. g., c. p. holis for circles 12" b. g.; Rhodes 7". Shears, 69" b. g.; Shears, 69" b. g.; Rhodes 7". Shears, 69" brt. rotary sitting, (2),

Shears, 60" thrt. rotary slitting. (2), Square shears. Niagara 62" power. m. d. 18-ga.: Ohl 8' power 16 gauge. Steam hammer, Miles-B. 1100 lbs Thread miller, Lees-Bradner No. 54. Turret lathes, Warner & S. No. 2A.

#### FOR SALE BY

#### A. R. Marsh Machinery Co. 4900 W. 73rd St., Cleveland, Ohio

Boring machine, No. 0 Giddings & Lewis precision, 3\" bar. Lathe, 14"x6' Hendey, taper attachment, late number.

Miller, No. 14 Milwaukee universal, double overarm, motor drive, com-

plete equipment.
Millers, Nos. 3-B and 4-B Milwaukee plain, double overarm, motor drive.
Punches, No. 17 Williams & White, 48" throat, \( \frac{\psi}{2} \) "thru\( \frac{\psi}{2} \)", motor drive.
Turret lathe, No. 3-A Warner & Swasey, arranged for clucking.

### FOR SALE BY

### The Brighton Screw & Mfg. Co.

#### 1456 Harrison Ave., Cincinnati, Ohio

AUTOMATIC SCREW MACHINES.		
One 1-4 Model "A" Cleveland s. s. automatic	8 85	.00
Two 2" Model "A" Cleveland s. s. automatic	150	
One No. 53 four-spindle National-Acme automatic	250	.00
Three No. 52 four-spindle National-Acme automatic		.00
Good working condition, immediate delivery, F. O. B. Cincinnati		

#### FOR SALE BY

### Miles Machinery Co.,

Broach, No. 4 Oilgear hydraulic, Bulldozer, No. 2 Williams & White, Compressor, 8"88" Bury, Drill, radial, 3" & 4" American, Gear hobber, 12", 18" & 24" G. & E. Grinder, 6"x32" to 14"x72" Norton. Grinder, crank, 16"x68" Landis. Grinder, internal, Nos. 70 & 75 Heald Grinder, sur., Nos. 10, 16 Blanchard. Keyeater, Nos. 0, 2 & 4 M. & M. Lathe, 14"x6' Monarch. Lathe, 18"x8' Whitcomb-Blaisdell. Lathe, 26"x13' Wickes.

### Saginaw, W. S., Mich.

Lathe, turret, Nos. 4 & 6 W. & S. Lathe, turret, 24" & 36" Bullard, Mill, boring, 96" Betts. Mill, horiz., 41" bar Defiance. Millers, Nos. 2, 3 & 4 Cincinnati. Miller, vertical, No. 6 Becker. Miller, universal, No. 3 Ohio. Miller, universal, No. 3 Onio. Planer, 36"x36"x12" Cincinnati, Planer, 46"x46"x16" Liberty. Press, No. 6 Adriance o. b. i, Press, No. 67 Consolidated. Shaper, 16" & 20" Milwaukee. Shaper, 24" Gould & Eberhardt.

#### FOR SALE BY

#### Severin Machinery Corporation, 30 Church St., New York, N. Y.

BORING MILLS. 1-51" Bridgeport, vertical. 1-60" Bridgeport, vertical. 6" Niles hor, table type.

COMPRESSORS Pre-2-17#x28x12, I -R. Laidlaw 13"x14" short belt. Pre-2-14x26x18, L.-R. 220 cu. ft. Ingersoll gas portable.

HAMMERS 3B Nazel hammer 12" McDougal & Potter. 9" McDougal & Potter. 1500 lb. Chambersburg b. d. LATHES

90"x40' Pond, belt drive. 25"x10' Le Blond, d. c. drive. 21"x10' Le Blond, d. c. drive. 33-60x20 LeBlond gap. 36-60x12 Harrington gap. 27"x18' LeBlond. MISCELLANEOUS

Crane, 20 ton, 30 span. a. c.
Drill press, 6-spindle Foote-Burt.
Levellers, 62" H. & J. (2).
Planer, 60x72×16' D. & H. openside. Presses, H. & W. 25 ton and 50 ton lamination. Punch, #" Cleveland.

### FOR SALE BY

### W. P. Little Co...

Cold saw, No. 4-B Cochrane & Bly. Cut-off machine, 4" Hurlburt-R. Drill, 26" Barnes, sliding head. Drill, 30" Prentice gear box and t.a. Drill, 49" Prentice gear nox and t.a. Drill, 4" Prentice radial gear box. Grinder, No. 6 Besly disc. Grinder, No. 7 Gardner disc, b. b. Grinder, No. 6 Bryant internal. Grinder, No. 19A Bryant internal. Grinder, No. 75 Heald internal.

Hammers, high speed 1-A & 2A. Lathe, 24"x10' Le Blond double back geared and quick change geared. Lathe, 17"x8' Sidney d. b. g. & q.c.g.

W. 9th & Front St., Cleveland, O.

Lathe, 3#"x84" Lo-Swing. Lathe, 8"x60" Lo-Swing. Lathes, Porter-Cables 9"x14" Metal cleaning mche. No. 5 Ideal. Metal cleaning mche. No. 3 Ideal Miller, Ingersoil 28", 22", 226". Milling machine, 28" Cincinnati, Pinion cutters, Bilton automatic. Planer, 32", 32", x14" Pond. Press, No. 27 Cleveland horn. Press brake, 36" Geo. H. Ohl.

Riveters, Shuster, ¶", ‡", ¶".

Shear, 46", 16 gauge power.

Tumbling barrel, Hoevel sand blast.

Turrets, Warner & S. Nos. 4 & 6.

Partial list, 150 other tools on hand. Send us your inquiries.

#### FOR SALE BY

### Reliance Machinery Sales Company N. S. Pittsburgh, Pa.

1405 Brighton Road. Air compressor, Brunner dbl. cyl., # 1 h. p. motor, complete. Automatics, No. 53 National-Acme. Bolt cutters, §", ¶", 1-§ single head. Boring mill, 34" Colburn. Boring mill, 36" Niles 2 heads. Bulldozers, No. 27 Williams-White. Broach, No. 3 LaPointe. Car wheel borer, 42" Ridgeway. Centering mche., Cadillac dbl. end. Crane, No. 4 Canton portable floor, Crane. No. 4 Canton portable floor. Drill, 20" Suffalo, back geared. Drills, 23", 24", 28" sliding head. Drill, 36" T. & F. sensitive radial. Drill, Model "F" Turner turret. Drill, No. 4 Colburn mfg., 4-spdis. Grider, 18 h. p. Rosson, 200-3-60. Grinder, 19 h. p. Ransom, 200-3-60. Grinder, 19 h. p. Ransom, 200-3-60. Grinder, 19 h. p. Ransom, 200-3-60. Grinder, Oliver drill, ‡" cap., m. d. Grinder, 12"x24" Modern plain. Grinder, No. 14 Gardner disc. Grinder, No. 2‡ Bath universal. Hammers, No. 2-A, h. d. Hi-Speed, m. d., 3 ph., 60 cy., 220 v., (4). Hammer, No.1AA High Speed, m.d.

Hammer, 200 lb. Bradley cush. helve. Hammer, 200 io. Practicy Cush. netve.

Lathe, 14"x6' L. & S. g. h., s. p. d.

Lathe, 14"x6' Rockford, c.g., d. b.g.

Lathe, 16"x6' Blount patternmakers.

Lathe, 16"x6' Springfield brass.

Lathe, 16"x6' Springfield brass.

Lathe, 16"& 18" & Sq. c.g., d. b.g. Lattie, 18° 22 18° L. & S. q. C.g., d. O.g., Lattie, 18° -28° Fay & Scott gap. Lattie, 17° -37° x8° Fay & Scott gap. Lattie, 18° -37° x8° Fay & Scott gap. Lattie, 18° x10° W.-B., g. h., s. p. d. Lattie, 27° x18° Reed, bargain. Lattie, 48° x19° 8° Betts Bridgeford. Lattie, 39° x18° L. & S. q. c. g. Lathe, 3"x36" J. & L. flat turret. Lathe, 18" Libby turret, s. p. d. Lathe, 21" Gisholt turret, (2). athe, No. 5 Foster turret, grd.fr.hd. Lathes, No. 4 W. & Stur., g.f.h. Millers, No. 1 Cleveland plain, (2). Miller, No. 1 Kempsmith plain, universal equipment.

Miller, No. 2A Milwaukee plain, Millers, No. 2 Ohio plain, (2). Miller, No. 3 Cincinnati plain, m. d. Miller, 35"x24"x10' Newton slab. Miller, No. 2 Cincinnati vertical. Milling mch., No. 2 Cinti. univ., b.d. Miller, No. 3 Cinti. univ., b.o. Miller, No. 1 Garvin hand, b. d. Pipe machine, 6" Jarecki, m. d. Planer, 24"x42"x8" Powell, 1 head. Planer, 30"x30"x8" Powell, 1 head. Planer, 36"x30"x12" Ginti. 2 heads. Planer, 46"x30"x12" Gray, reversable motor drive, 3 heads. Press, No. 3 Adriance o.b.i., 32" str.

Presss, No. 3 Agriance (19.14).
Presses, No. 34-A Toledo Stiles.
Punch, No. 2 H. & J. horizontal m.d.
Punch, Wickes, 48° thrt, cap. 14′x1″.
Radial drill, 4′ Fosdick s, p. d., g. b. Radial, 6' Prentice plain. Raddal, 8' Prentice plain.
Saw, No. 3 Ryerson h s. frict. m. d.
Saw, No. 12 Higley cold, cap. 8" rd.
Saw, No. 18 Higley cold, cap. 8" rd.
Seamers, Bliss, Leffler & Max Ams.
Shapers, 20" Stockbridue & Clinti,
Shapers, 24" & 32" G & E., m.d., b.g.
Shear, Model 9-15 Unichear, m. d.,
Shear, Model 9-15 Unichear, m. d., Shear, bar, No. 14 W. & W. cap.2"rd. Shear, 96"x16 ga. Stoll power squar. Shear, No. 0 H. & J. gullotine, b.d. Shear, No. 103 Bliss circle.

Tapper, nut. I" Acme semi-auto. Wire former, No. 2 Nilson automatic 4 slide.

#### FOR SALE BY

#### O. T. Webb Machinery Co., 1043 N. Water St., Milwaukee, Wis-

Drill press, 20" lever. . 8 65. Grinder, No. 1 LaSalle surface. 60. Grinder, No. 1 Lasarie Surace. 175. Keyseater, No. 10 Baker. 175. Lathe, 16"x10" South Bend. 350 Lathe, 18"x8" Chard, q. c. g. 325.

Miller, 30"x6' Ingersoll .. Motor, General-Electric 15 h.p. 125. Planer, 22"x4" Pease 200.
Punch, Rock River, #" in #" 200.
Shaper, 20" Kelley b. g. 395.

### FOR SALE BY

### A. M. Stoehr Machinery Co.

Balling press, scrap metal. Miller, Pratt & Whitney automatic. Planers 48"x48"x32" Pond 2 heads,; 36"x36"x20" Pond 2 heads. Presses, Nos. 1,14, 34-B Bliss toggle

### 106 S. Jefferson St., Chicago, III. Punch and shears, No. 53 Beloit.

Rolls, straightening, L. & A. 7'x1". Shear, P. S. & W. 52", 14 gauge. Slitter, gang, 36-G Yoder m. d. Wire straighteners up to \" cap.

#### FOR SALE BY

#### Brown Machinery Co.,

Drills, 21" Champion; C & O.: 24", 32" Mechanics; 24" American. Drill, Moline 66-D, 4-sp. Hole Hog. Gear hobber, Gould & Eberhardt. Grinders, Safety No. 302 edge, No. 6 Besly; No. 202 Badger. Hack saw, 6x6 Racine.

Lathes, 16x6 Monarch: 18x8 Lodge & Shipley: 18"x8' Prentice, grd. hd.; 26x10 Putnam: 30x10 Blaisdell.

Miller, No. 2. Hendey-Norton, univ. Millers, No. 4 Hendey; No. 3 Fox. Press, arbor, No. 3 A Geier; No. 3 Greenerd.

2333 N. 9th St., St. Louis, Mo.

Planer, 42"x42"x10' Pond, Press, Lourie hydraulic, 200 ton. Riveters, Grant 4-V-3 motor drive. Shaper, 20" Smith & Mills. Shear, 50" Excelsior power, 10 ga. Shear. Lennox throatless 1/16 cap.

This is only a portion, as we have several hundred good used machines in our stock. Send us your inquiries for interesting quotation on machine shop or sheet metal working equipment.

#### FOR SALE BY

### M. A. Wertman Machinery Co., 427 Penton Bldg., Cleveland, Ohio

Air compressor, 300 c. f. m. Westinghouse 3 cylinder vertical motor drive.

Automatic. Potter & Johnston 5-A m. d., late machine, perfect condition. Automatic. F. 4" Cleveland Model A. Automatic. F. 4" Cleveland Model A. Automatic. B. 4" 3" Cleveland Model A. Axiomatic. S. 4" 3" Cleveland Model A. Axiomatic. Automatic. B. 4" 3" Cleveland Model A. Axiomatic. S. 5" Miles-Bement-Pond center drive, 2 carriage m. d. 95% new. Boring mill. 60" Bullard.

Boring mili, 90° pullard.

Brake, 8° xls gauge Robinson power brake, new condition.

Drill, radial, 3° Cincinnati-Bickford, gear box s. p. d.

Drill, radial, 5° Fondick arranged for motor drive.

Drill, radial, 5° Por unite arranged for motor drive.

Friction saw, Nevron No 2 high speed, motor drive.

Grinder, disc, No. 19-58° Besty vertical spindle.

Lathe, Rivett bench lathe with collets and equipment.

Lathe, Rivett bench lathe with collets and equipment.
Milling muchine, Brown & Sharpe No. 3 plain, power quick traverse,
Motor, 45 h. p. for No. 3 Ryerson friction saw, 220 volt 3 phase 60 cycle.
Oil extractor, No. 490 Curtis, 18 bu, capacity, belt drive.
Press, Cleveland No. 6-1, o. b. i, weight 3306 lbs, brand new,
Press, Cleveland No. 6-1, o. b. i, weight 3306 lbs, brand new,
Press, Taledo, s. s. geared? "shaft, 39" stroke,
Punch and shear, Cleveland EF 24" throat, arch jaw, motor drive,
Turret lathe, No. 2 Bardons & Oilver, bk, gear and power feed, lot of collets,
Turret lathe, No. 6 Warner & Swasey, power feed turret and cross slide.

Welder, arc, 300 amp. Lincoln, 220 volt 60 cycle, like new, Welder, spot, 112 National 110 volt 60 cycle, 12" throat. Welder, spot, 25 k. v. a. Gibb, 36" throat.

### FOR SALE BY

### L Machin

Wigglesworth Machinery Company		
170 Summer Street,	. Boston, Mass.	
Boring mill, 41" bar Binsse.	Miller, No. 4 Cincinnati vertical	
Boring mill, 54" bar Bement-Miles.	s. p. d., rapid traverse.	
Boring mill, 24" Bullard New Era.	Miller, 60"x12' Newton planer type	
Boring mill, \$1" Bullard,	slab.	
Boring mill, 84" Betts.	Planer, 36"x36"x20' Pond, m. d.	
Boring mill, 86" Bullard.	Planer, 60"x60"x16' Niles-BP.	
Compressor, 20"x12' Ingersoll-Rand	Planer, 72"x48"x12' Pond, motor.	
Drill, 6' Prentice radial.	Planer, 84"x56"x16" Gray, 4 heads.	
Drill, 3-spindle Leland Gifford.	Planer, 72"x60"x16' Detrick &	
Drill, 6-spindle Allen.	Harvey open side, like new.	
Grinder, No. 3 Bryant semi auto.	Press, Nos. 18, 19, 20 Bliss.	
hole,	Press, No. 710-E Niagara.	
Hammer, 2000 and 3000 lb. new	Press, No. 93-B Toledo.	
board drop, † price.	Press, No. 5-A Bliss.	
Hammer, 6000 lb. Sellers, steam, Lathe, 14"x 6' Hendey, taper.	Press, No. 6-E Bliss. Press, No. 8-C Bliss.	
Lathe, 16"x 7' Reed-Prentice, g. h.	Press, No. 1684 Toledo toggle.	
Lathe, 21"x14' South Bend.	Screw machine, No. 2 B. & S. auto.	
Lathe, 22"x24' Lodge & Shipley.	Screw machine, 24" Gridley, 4-spdl.	
Lathe, 26"x10' Whitcomb-Blaisdell.	Shaper, 15" Potter & Johnston.	
Lathe, 60"x11' New Haven.	Shaper, 28" Columbia, s. p. d.	
Miller, No. 3 Cincinnati universal.	Slotter, 38" Newton.	
regiment and a committee our resource	Cities to stanton	

### New and Used Wood-Working Machinery

For a large list of new and used wood-working machinery, consult Wood-Working Machinery - a monthly publication similar to this, but devoted to the advertising of wood-working and saw-mill machinery and allied equipment.

A copy may be had free of cost on application to the publisher, Hitchcock Publishing Co., 508 S. Dearborn St., Chicago, Ill.

### A CHAIN

The advertisers in the Blue Book pay Hitchcocks. They send you the Blue Book free. You buy the articles advertised. So far, so good.

### BUT-

-suppose the advertisers do not know that you saw their ad in the Blue Book, how will Hitchcocks get credit? When writing to advertisers, won't you kindly mention our name? Thanks!

# High Grade Machine Tools

Lathes

16 x28 H. S. & G., Geared Head, Arranged Motor Drive, late type. 24\*x22' Bradford, cone drive. 36\*x18' Fifield Engine Lathe. 26\*x18' Walcott, 3S. C. D. B. G. 26\*x18' American, Q. C. 23\*x17' LeBlond Grd. Hd. motor dr.

24\*x15\* Lodge & Shipley, Q. C. G. 24\*x12\* Boye-Emmes, 3 S. C. D., 24\*x12\* Boye-Emmes, 3 S. C. D., D. B. G., Q. C. 23\*x12\* LeBlond 3 S. C. D. B. G. 20\*x12\* American, Q. C. late type. 21\*x10\* LeBlond Grd. Hd., late type.

21°x10' LeBlond, 3 S. C. D., D. B.

G., late type.

18\*x10\* Schumacher - Boye - Emmes,
3S. C. D., D. B. G., late type.
15\*x10\* Whitcomb-B. Q. C. 3 S. C.

16\*x8\* Prentice Grd. Hd. S. P. D. 52" New Haven Stub Lathe.

Grinders Nos. 60, 65 and 70 Heald Grinders. 6\*x18\* Landis Plain, Self Contained. No. 11 Brown & Sharpe Plain. 10"x52" Landis Plain, Self Con. 12" Pratt & Whitney Surface. No. 4 Landis Universal. Nos. 2 & 21/2 Bath Universal. No. 1½ Cincinnati Tool & Cutter. 16"x68" Landis Self Cont. Crankshaft.

Gear Cutters 30" Flather Auto, Gear Cutter, No. 4-48" B. & S., late type. No. 3-26 Brown & Sharpe, late type. No. 12 Barber-Colman Hobber, dbl.

Modern Chaser Grinder.

overarm, late type 18-H Gould & Eberhardt Hobber. Nos. 14 and 15 Whiton Automatic Spur and Bevel, late types.

Boring Mills 348 Gisholt Vertical one turret head. 48 Colburn Vert. 2 sw. hds., late type. 51 Bullard Vertical 2 hds., rapid trav. 60 Bullard Vertical 2 hds., S. P. D. 96" Bickford Vertical. No. 1 Rockford, Horizontal 2" bar.

Milling Machines No. 5 Brown & Sharpe Plain. No. 4 Cincinnati, Plain. No.4 Cincinnati Pl., High Pwr.S.P.D. No. 3-B Milwaukee Plain, Double overarm. Late type. No. 3 Ohio Plain, Rapid Power Trav.

Write for Complete Catalogue-We Buy, Sell and Exchange

No. 3 Cincinnati, Plain, No. 3 Cincinnati Vert. H. P., S.P.D. No. 1½ Milwaukee, Double Over-arm, S. P. D. Universal, No. 3 Kempamith Universal. No. 3 Cincinnati High Duty Universal, S. P. D. flange nose. No. 2-A B. & S. Univ. S. P. D. No. 6 Becker Vertical Miller. 5° Pratt & Whitney Automatic. No. 7-H Becker Lincoln type. No. 1 Knight Miller and Driller. No. 3 & 3-E Lees B. Thread Millers. Planers

24"x24"x81 Gray Planer. 27"x27"x81 Woodward & Powell. 26"x26"x12' Whitcomb-B., 2 heads. 36"x36"x12' Gray, 2 heads. 36\*x36\*x30' Cincinnati, 4 heads. 42\*x42\*x27' Cincinnati, 4 heads. 48°x48°x20' Cincinnati, 4 heads. 62"x62"x401 Cincinnati, 4 heads.

Radial and Upright Drills 4' American Tr. Grd, S.P.D. or M.D. 4-American I. T. Gr. S.-T. Gr. M.D. 22° Barnes Camel Back. No. 2 Colburn Mig. H. D. 2-spindle. 3-ap. Avey High Speed Ball Bearing. 4-Spdl. Foote-Burt Independent Feed. 6-spindle Rockford 20° B. G. P. F. No. 30 Nateo Multiple Spindle.

Shapers 16" Walcott B. G. Crank. 16" Gould & Eberhardt High Duty. 20° Gould & Eberhardt High Duty. 24ª Queen City heavy duty, cone dr. 20 Queen City, late type.

Miscellaneous 6x6 Curtis Air Compressor 2º Landis Single Spindle Bolt Cutter, lead screw attachment. 2º Landis Double Spindle Bolt Cutter. 2" Landis Double Spingle Doit Cuter. 1½" Acme Bolt Cutter, Landis Head. ½" Landis Double Spdl. Bolt Cutter. 9' Vulcan Press Brake. No. 3 J. N. La.P. Broaching Miche. 12"x12" Racine Hack Saw. Nos. 1 & 2 Davis Keyseaters. No. 3 Baker Keyseater. No. 42 Toledo Horning Presses. Wickes Punch & Shear, 48° throat, 11/4° thru 11/4°. High Spd. Rivet., I AA; 1½B: 2AHD. No. 2 Garvin Vertical Tapper. No. 4 Warner & Swasey Turret Lathe. No. 1-B Foster Univ. Tur. Lathe m. d.

Cincinnati Machinery & Supply Co., 28 West Second St., CINCINNATI, OHIO

# K & T Rebuilts Are Rebuilt!

K & T Factory Rebuilt Milling Machines are rebuilt in our factory where the original patterns, tools, jigs, and gauges are available. Completely dis-assembled, the main castings are replaned or rescraped and worn parts of the mechanism are replaced. They are assembled with the same care and precision as new Milwaukee Millers and must pass identically the same accuracy tests.

It is with absolute frankness and sincerity that we say to you "K & T Rebuilts are Rebuilt!"

Send for Catalog 33 and list of machines available.

Address: Rebuilding Dept.,

KEARNEY & TRECKER CORPORATION
5926 NATIONAL AVENUE MILWAUKEE, WISCONSIN



# Unusual Values Mo

MILLING MACHINES

No. 3 Kempsmith Univ. cone pul. comp. No. 2 Cinti. Univ. cone pulley, complete. Nos. 2 & I Cleve. Univ., s.p.d., compl. No. 1½ B. & S. Univ., cone pul., comp. No. 1-A Owen Univ., cone pulley comp. Nos. 5 & 4 Cinti. H P Pl., arr. m.d., p.r.t. Nos. 43 & 2 Cinti. Hi-Pwr. Plain, s. p.d. No. 3-B Milwaukee Plain, double overarm, arranged motor drive.

Nos. 3-B, 2-B, 2-B, S. & 11/2-B Special Milwauke Plain, single pulley drive,

double overarm. No. 2-G LeHlond Pl., single pulley dr. Nos. 3, 2 & 1½ Cincinnati PI, cone pul. Nos. 3, 2 & 1 Kempsmith PI, cone pul. Nos. 3, 2 - H & 1½ Brown & S PI, c.p. No. 2 LeBlond Plain, cone pulley. Nos. 4 - B & 3 Becker Vert., cone pulley.

SHAPERS AND PLANERS

26° G. & E. Hi-Duty B. G. Crank. 26° & 20° Keiley hvy. duty. b. g., crank. 24° & 20° American Hi-Duty B. G. Crank, single pulley drive.

25° Springfield H. D., B. G. Cr. s. p. d. 25° & 20° 5 & M. H.D., B. G., Crank. 24° & 20° Walcott h. d., b. gr, crank. 24° Barker back geared crank. 24° Stockbridge H. D. B.G. Crank m.d.

22° Ohio Hvy Duty B. G. Crank. 20° Columbia Hvy. Duty B. G. Crank.

20" Milwaukee heavy duty, b. g. crank.

7º Fordick Plain. cone pulley. 61. 5. 41 & 31 American Figure Plain, single pulley, gent box drive. 5. 41 & 31 American Triple Geared, 61 Niles-Bement-Pond Plain, motor dr. 6', 5' & 4' American Tr. Purp.Pl.,g.b d.

41 & 31 Cinti -Bickford Plain, g. b. d. 4! Fordick Plain, gear box drive. 41 Hammond jack knife type, h. a., b. d. 41 Dreses Hi-Duty Plain Radial, g. b. d. 31 American b. b. Sensitive.

31 Mueller Plain Radial, gear box drive. 21/21 Morris Plain, gear box drive.

2/½ Carlton B. B. Sensitive.
No. 1 W. F. & John Barnes Horizontal.
Nos. 121,217,310,314 Baker Bross. H.D.
Nos. D-2, D-3 & D-4 Colburn H. D.
36\*, 32\*, 24\* & 22\* Aurora Upright. 36ª Cinti. Bickford Upr., g b. d.

34°, 26°, 22° Barnes Upright, late type,

Becker Model C. S. Vert. Continuous Nos. 3 & 4 Cincinnati Hi-Power Verticals, S. P. Drive, (late type). Nos. 2½-B & 1½-B Milw. Vert., s. p. d. No. 3 Toledo Vertical, s. p. d. No. 21 Brown & Sharpe Automatic, 48°, 24°, 18° Cincinnati Auto. Duplex. . 24 & 18 Cincinnati Plain Auto. 28ª Cincinnati Semi-Automatic Duplex. 28ª Cincinnati Semi-Automatic Plain. 28ª Cincinnati Semi-Auto. Face Milling. 48"x42"x81 Ingersoll Slab, hor, sp., ad.r. 10° and 12° Pratt & W. Automatic. No. 1 U. S. and No. 6 Whitney Hand. No. 1 Knight Milling & Drilling Mche. 40ª Ohio Tilted Rotary Miller.

No. 33 Kempsmith Prod. Type, s. p. d. No. 3 Sundstrand (Rigid Mill) s. p. d.

20° Cincinnati heavy duty, b. g., crank. 20° Stockbridge hvy duty, b.g., crk.s. d. 20° G. & H. Hi-Duty B.G Crank, s p.d. 16" G. & E. h. d. b. g., crk . arr. m. d. 16" G. & E. Hi-Duty B. G. Crk., late. 16" Hollingsworth by, duty, b. g. crank. 15" Smith & Mills crank.

24" Cincinnati crank planer, I head.

24\*x24\*x10' Liberty planer, I head. 30\*x30'x10' American planer, I head. 33\*x33\*x8' Ohjo planer, 2 heads. 36\*x36\*x10' Cin. H.D., Tu.-Sp., 2 hds. RADIALS AND UPRIGHT DRILLS

26", 24" & 21" Cincinnati-Bickford Up. 21" & 25" Weigle Upright. 21" & 25" Fosdick Upright, gearbox dr. 21° & 23° Fesdies Upright, gear oox ar, Nos. 005 & El S Garvin Heriz Duplex. 1, 3 & 4-ap. No. 2 Colburn Mig. H. D. No. 26 C Fox Mult. eq. with 40 spdls. Leland & G. I & 2-sp. b. b., No. 2 M. T. 1, 2, 3, & 4-sp. Allen b. b. No. 2 M. T. 1 & 2, 2-sp. Avey b. b., No. 2 Morse Tap. Fondick I & 2-sp. b. n., No. 2 M. T. Sipp 3-upindle b b., pwr. feed. No. 2 M. T. Supp 3-apindle b b, pwr. feed, No. 2M. T. Demeo 3-ap.b, b, power feed, No. 2.M. T. No. 17 Foote-Burt 3-ap. H. D. rail drill, No. 2 Avey 4-ap. b, b, p. f. No. 2 M. T. No. 220 Baker 2-spindle, Heavy Duty, 4-ap, Leland & Gifford b, b, pwr. feed, 4-spindle 22½ Barnes Heavy Duty. No. 12 P. & W. Mult, Spindle, 15-spdls.

No. 1 Bausch Mult., equip. 9-sp., late.

BBB

### EASTERN MACHINE We Buy Machinery.

# dern Machine Tools

### ENGINE AND TURRET LATHES

14"x6' Hendey yoke hd., q. c. 14"x6' LeBlond geared head, q. c. 14° x8' L. & S. sel, grd. hd., q. c., t. a. 16"x6' & 16"x8' L. & S. q. e. late. 16\*x6' Hendey geared head, q. c. 16\*x6' Hendey Yoke Hd., Q. C., t. a. 16\*x12' Amer. H. D., G. H., Q. C., t.a. 18"x8" Hendey yoke hd., q. c., t. a. 18"x8" & 18"x 10" Am H. D., g.h.,q.c. 18"x10" and 18"x8" Boye & E. q. c. 20°x8' Hendey Grd. Hd., t. att. late type 20"x 101 LeBlond quick change. 20"x12" American H. D., q. c., t. a. 20"x16" Whitcomb-B. G.H. Q.C., t. a. 24°x12' Lodge & S., q. c., patent head. 24°x14' L. & S. Sel. Grd. Hd., q.c., m.d. 24\*x16¹ L. ot. S. St. Grd. rap. st. 124\*x16¹ Lodge & S., q. c., taper att. 27\*x14¹ Lodge & Shipley, q. c. 27\*x16¹ American Grd Hd., q. c., taper. GEAR MACHINERY

Nos. 2, 3 & 12 Barber - C. Gear Hob. No. 16-H Gould & E., Gear Hobber, No. 5-A Lees-Bradner Gear Hobbers, 30° & 12° Ingle Gear Tooth Rounder. Nos. 6, 61 & 615 Fellows Gear Shapers. No. 4-48 & No. 3-26 B. & S Gear Cut. 6,2 11" & 18" Gleason Bevel Gr. Gener. 84º Diamond Face Grinder, arr. m. dr. 60" Bridgeport Face Grinder. No. II B. & S. Plain, self-contained late, 6x32", 10x36", 10x50", 10x72" Nort, pl. 16\*x48" Landis Pl. Self-Con. Crkshaft,

6x18",10x24",10x36", 10x52",16x52"

ands Plain Self-Contained. 14"x60" Queen City Plain, self-cont

MISCELI Arbor Press, Nos. 3, 3½, 4, 5, Greenerd. Automatics, Nos. 5-A & 6-A P. & J. Boring Mill, No. 1 Cleve. 2" dia, bar. Boring Will, No. 1 Cleve. 2" dia. baf. Bor, Mill, 3" Lambert Hor., 3" dia. bar. Boring Mills, 24", 36", & 42" Bullard NEW ERA TYPE Vertical. Bor, Mill, 24" & 36" Bullard R. P. V.

Bor, Will, 42" Bausch Vett, 2 hds, prt. Broaches, Nos. 2 and 3 J. N. LaPointe, single and double types. Die Sinkers, Nos. 2 and 3 Pratt & W. Hack Saw, 656" Racine and Perfess, Hammers, No.3-AH, D. &3-AH, S. Riv. Keyseater, No. 3 Baker, cap. 28.

30"x14" Lodge & S., q. c., taper att. 36"x16" American Grd. Hd., q. c., l. t. 36 x 16 Boye & Emmes q. c. taper att. 36"x16' Lodge & S. Selective Hd., q. c.

36"x18' Lodge & Shipley, q. c. Nos. 3-A & 2-A W. & S. Universal Hollow Hexagon Turret.

3x36" Jones & Lamson Turret, ck. eq. 3x36" & 2½x24" J. & L. Tur., bar eq. 3"x36" J. & L. Dbl. Sp. Tur. chk. equip. 3½"x36" Acme G. H. Tur., chk. equip. No. 4 Warner & Swasey Univ. Turret, No. 4 Warner & Swasey Univ. Turret, No. 4-G Millholland Crd. Head Turret. 13, 21 & 24° Gisholt Turret Lathes, late. 18° & 26° Libby Turret, late types. Nos. 2 and 4 Foster Turret.

Nos. 2, 4, & 6 Warner & Swasey Turret. Nos. 4 & 7 Bardons & Oliver Turret. AND GRINDERS

No. 2 Cincinnati 12\*x36\* Plain, No. 70 Heald Int., late type clutch in hd. Nos. 70 and 75 HealdInternal. No. 3 Abrasive Auto Surf., m.d., mag.chk. Nos. 2 and 3 W. & M. Auto. Surface. No. 16-26 Blanchard Vert, Surf., b, d. 12 P. & W. Vert. Surf., rot. mag.chk. 14" Pratt & Whitney Vertical Surface. Nos. 2, 3 & 4 Brown & Sharpe Univ. No 1 LeBlond Univ. Tool & Cutter. No. 1½ Cinti. Univ. Tool & Cutter (2). No. 3 Ohio Univ. Tool & Cutter, pwr fd. No. 4 23\* and No. 8 40\* Gardner Disc. No. 29-53" Besly Horiz. Disc, m. d.

ANEOUS

Millers, 2" and 4" Pratt & W. Spline. Polishing Mche., Bleveney Type A Prod. Press, 15 ton Lucas Forcing. Press, No. 206-B Toledo D. C. G., Pwr. Pr., No. 91-D Toledo Dbl. Cr. Grd. Pwr. Press, No. 4 Robinson Pwr., O. B. I. Press Brake, 10<sup>1</sup> Robinson Pwr., 10 ga. Nos. 20 and 21 Bliss O. B. I., Power. Shear, S., 10' Loy & N. Pwr. cap. 16". Shear, 96" Bliss Power Gap, 16" cap. Slotter, 15" Niles-Bement-Pond. Tappers, Nos. 2 and 2X Garvin Auto. Thread Millers, 6"x14", 6"x80" P.A.W. Welder, Federal Spot, cap. 2 pcs. 5/16".

And Many Others. Send Us Your Inquiries.

3261 Spring Grove Av., CINCINNATI, O. What Have You To Sell?

# Pre-Inventory Sale **Extremely**

# Anticipate Your Requi

### BORING MILLS

1-52" Bullard 2 swivel heads, 71/2 H. P. 220 volt, 3 phase motor.

### DRILLS (Upright and Radial)

1—3-Spindle Leland-Gifford High Speed. 1—3-Spindle Allen Power Feed. 1—3-Spindle Allen Hand Feed. 2—1-Spindle Foote-Burt Heavy Duty.

Z-I-Spindle Foote-Burt Heavy Duty.
I-No. 3 Minster heavy duty, 3½" capacity.
I-No. 310 Baker Bros. heavy duty drill.
I-22" Aurora B. G. P. F. and Tap.
I-24" Sibley B. G. P. F. and Tap.
I-24" Sibley B. G. P. F.
I-26" Aurora B. G. P. F.
I-28" Barnes B. G. P. F.
I-28" Barnes B. G. P. F.
I-31" Corley Plain S. P. G. B. Drive.
I-4" Pond Plain arranged for motor.

1-4' Pond Plain arranged for motor.

1-5' American Plain motor drive. 1-6' Mueller Plain S. P. G. B. drive.

1-4 Hammond radial drill with tapping attachment motor driven.

### GEAR CUTTERS AND HOBBERS

I-No. 3-26" B. & S. Gear Cutter. I-No. 12 Barber-Coleman Hobber motor drive.

### GRINDERS

2-No. 11 Plain B. & S. Grinders. 2-No. 12 Plain B. & S. Grinders. 2-No. 14-48 B. & S. Plain Grinders. 1-No. 2B. & S. Universal Grinder.

### LATHES (Engine and Turret)

1-12"x 5' American. 1-12"x 6' Seneca Falls. 1-20°x101 Walcott.

1-20°x101 Lodge& Shipley.

I – 12"x 6' Seneca Falls.

1-4"x 6' Hendey.

1-16"x 8' Bradford.

1-16"x 8' LeBlond.

1-16"x 8' Lodge & Shipley.

1-16"x 12' Prentiss Geared Hd.

1-18"x 8' Schumacher & Boye.

1-18"x 8' Cincinnati.

|-20"x | 0' | Lodge & Shipley. |-20"x | 6' | Lodge & Shipley. |-24"x | 6' | Lodge & Shipley. |-24"x | 0' | Lodge & Shipley. |-30"x | 4' | Johnson. |-30"x | 6' | Lodge & Shipley. |-32"x | 28' | Bullard. |-32"x | 28' | Bullard. |-32"x | 28' | Bullard. |-36"x | 4'y | Hole Libby Type Constant drive.

1-18\*x 8' Boye & Emmes. 1-18\*x10' Walcott. motor drive.

# The Strong, Carlisle

1394 W. Third St., Cleveland, Ohio

# of Excellent Tools at Low Prices

# rements and Buy Now

### SHAPERS AND PLANERS

1-20" American B. G. Cone Drive.
1-16" Smith & Mills Plain Crank Cone.
1-16" Smith & Mills B. G. Cone.

1-18 Gould & Eberhardt B. G. Cone.

I—18° Gould & Ebernard B. G. Cone.
I—20° Cincinnat B. G. Cone.
I—22° x22° x 5' Putnam Spur Geared, I Head.
I—30° x30° x12' Gray 2 Heads, belted motor.
I—36° x36° x 12' Niles Spur, 2 Heads, D. C. Motor.
I—36° x36° x 14' Gray Sprinal Geared, 2 Heads, belt.
I—38° x38° x 10' Pond Spur Gear, 2 Heads, belt.

### MILLING MACHINES

I-No. 6 Whitney Hand, belt drive.

I—No. I Toledo Hand, belt drive. I—No. 8 Kempamith Universal, cone drive.

I—No. 2-B Hendey Universal, cone drive.
I—No. 3-B Hendey Universal, cone drive.
I—No. 3-Brown & Sharpe Flain, cone drive.
I—No. 3-Cincinnati Vertical, constant drive.
I—No. 2-A Milwaukee Manufacturing, constant drive.
I—Sepindle Becker Vertical, Tight and Loose Pulley Drive.

1-Type A Briggs Motor Driven Manufacturing Type.

### SCREW MACHINES

I-No. 3-A Latest Type Hollow Hex, motor driven, (Warner & Swasey) 97% new.
I-No. 4 Warner & Swasey P. F. Turret H. F. Slide.
I-No. 6 Warner & Swasey P. F. Turret H. F. Slide.

1-1/4" B Cleveland Automatic.

### MISCELLANEOUS

1-2" Landis Single Bolt Cutter. I-No. 19 Bliss.

1-11/2" Acme Dol. Bolt Cutter. I-No. 3 Rockford.

I-Cleveland Geared Press.

I-No. 2 Garvin Duplex Slotter. 1-1/2" R. & S. Vertical Tapper.

I-1/2" Acme Dol. Bolt Cutter.
I-8" Jarecki Pipe Machine.
I-2" Etna Cut-Off Machine.
I-No. 3 J. N. LaPointe Broach.
I-No. 4 B Cochrane-B. Cold Saw. 1-4-Sp. Acme Vert. Nut Tapper. 1-No. 2 Consolidated.

This Covers Partial List Only. Don't Hesitate to Send Us Your Inquiries.

# & Hammond

1300 Fort St. West, Detroit, Michigan

# REJANUFACTURED MONEY BACK VACHINE TOOLS GUARANTEE

LATHES 1-66"x36' Punam, Triple Geared, 1-43"x50' Pond, triple geared, 22-30", 24", 22", 20", 18", 16", 14", Lodge & Shipley Geared and

Lodge & Shipley Geared and Cone Head, various lengths.

35-26"x20" 18, 16, 14, 12, 10 and 9" Bridgeford Oil Country.

40-26"x18", 14', 10" N. B. P.

9-25"x12", LeBlond, Dbi, B. G.

2-20"x18", 16' Monarch.

2-20"x10" I. 12, 18' American.

2-20"x10" I. 12, 18' American.

2-30"x10" I. 12, 18' American.

2-18"x13" Reed-Pren. Gd. Hd.

2-16"x81" Reed-Pren. Gd. Hd.

1-16"x8" Hendey, oil pau.

1-14"x10" Prant & Wintney.

1-14"x12" LeBiond Geared Head 1-14"x10" Pratt & Whitney, 2-14"x6. 7" Reed-Pren., G. H. 4-13"x6" Sebastian Geared Head.

MILLING MACHINES

1-No. 4-36" Cinti. Hydromatic. 30-Nos. 5, 4, 3, 2, 1 and 0 Cincinnatic.

B. & S., Kearney & Trecker,
and Kempsmith Plain and Univ.

-No. 25 Becker. 1-No. 20 Oesterlein Univeral. 11-Nos 6, 5, 4-B, 1 Becker Vert. 4-No. 4, 2 Cincinnati Vertical. 1-Nos 5, 2 B. & S. Vertical. 1-Nos. 5, 2 B. & S. Vertical. 1-No. 3 Sundstrand Rigidmil. 5-48", 24", 18" Cincinnati Auto. 3-No. 33 Kempsmith Mfg.

6-24", 45", 50" Ingersoll Slab 178-Becker, Hendey, Pratt & W. and Briggs Lincoln Type Mil. 4-6"x14" P. & W. Thread.

GEAR CUTTERS

1-No. 5-60" Brown & Sharpe, 19-Nos. 12, 3 Barber-Colman. 5-No. 18-H. 36-H a Gould & Eberbardt and 36-BM

BORING MILLS

BOKING MILLS

1-98" Betts Vertical,

1-92" N.-B. P., Vertical,

1-84" 51" Bullard Vertical,

6-80, 52, 42, 38, 30" Gisholt,

2-48" 42" Colburn Vertical,

2-48" 42" Colburn Vertical,

3-42" and 22" King Vertical,

3-42" and 22" King Vertical,

3-43" AU Cleanate Harrigonia

2-No. 1 Cleveland Horizontal.

-No. 5-3" bar Defiance. -No. 2-5" Bar Barrett.

**HAYmarket** 

7660

HILL, CLARKE & CO. of CHICAGO

Washington Boulevard

1-5" bar N.-B.-P. Floor, GRINDERS

GRINDERS
1—20"x120" Landis,
1—18"x98" Norton,
1—18"x98" Landis,
1—18"x52" Landis,
22—10x72, 50, 36, 24" Norton,
23—10x72, 52, 36, 24" Landis,
3—6"x32" Norton,
1—10x72, 52, 36, 24" Landis,
3—6"x32" Norton,
1—10x72, 52, 31

5-6' x32' Norton.
1-No. 2, 2\frac{2}{2} Universal.
7-No. 60, 70 Heald Int.
1-14" P. & W. Vert. Surf.
2-12", 8" Heald Rotary Surface.
1-84" Diamond Face.

TURRET LATHES 2-26", Libby. 8-24", 21" Gisholt. 3-No. 4-A, 2-A W. & S. 2-14" Warner & Swasey. 11-No. 5-A, 6-A P. & J.

DRILLS

3-6' Reed-Prentice.
2-6', 3' Western.
1-6' American, Universal.
1-5' American, Tri. Purpose.
1-4' N.B.-P. Universal.
1-4' Hammond.
2-3' Dreses Simplex.

14-1, 2, 3, 4, 6-Spdl. Sipp. Henry & Wright and Leland-Gifford. 8-4, 3, 2, 1-spindle No. 2 Colburn, 4-24" and 36" No. 25 Foote-Burt.

3—4 Spdl. Nos. 2, 4, 17 Foote-Burt. 2—No. 14, 12 Natco Mult. 4—No. 14, No. 26-AC, No. D-31 Fox

9-No. 14, No. 28-AC, No. D-31
PLANERS
1-72"x84"x12' Gray.
1-72"x86"x10' Chrismati.
2-86"x86"x32' 16' Chrismati.
2-48"x48"x18' Pumam.
2-48"x48"x18' (10' N - B.- P.
3-36"x36"x18' Chrismati.
1-26"x26"x10' Gray.
2-24"x24"x80' Gray.
PRESECT

PRESSES

6—No. 20 Bliss O. B. I. 3—Nos. 203. 307. No. 5-C Bliss. 5—Nos. 91-B. 202 C, 203-B, 201-C Special Toledo.

**AUTOMATICS** 

4—14" Fay Automatics.
3—14" Gridley Automatics.
3—No 52—4" National-Acme.
2—14" Single Spindle Gridley.
3—2", 14", 9/16" Gridley.
1—4" Model H Gridley.

# Quality-Service-Economy

Drills

2-Avey Nos. 11/2 H. S. S. S. 2-Sipp 16" High Speed S. S 2-Acme 6D Semi-Auto. Drilling. 1-American 26" S. S 7-Aurora 21-24"-26" S. S. 2-Barnes Camel back 24".

1—Canedy-Otto. 2—Cincinnati Bickford. 6-Cincinnati 21-26° S. S. I-Minster D No. 1.

3-Superior 20"-26" S. S.

Drills - Multiple 1-Avey 148 Sensitive. -Kingsbury 4-sp. Horiz. D. M.D. 1-No. 2 Edlund High Speed 1-Pratt & Whitney 12-spindle.

Gear Shapers 3-Fellows 36º.

Grinders

1-Diamond No. 1 Universal Tool and Cuttter.
I-Thompson Tool Cutter, Surf.

1-Norton Tool and Cutter. 18-Norton Pl. Ext. 6x32, 10x24, 10x36, 10x50, 10x72, 14x72, 5-Heald Int. Nos. 65-75, 1-Besly No. 14 Disc. 1-Besly No. 6 Dbl. End. Auto.

I-Gardner Disc. 1-Brown & Sharpe No.2 Surface. 2-Rivett No. 205 Radial. 1—Rivett Univ. No. 6 Internal. 2—Landis No. 3 Universal.

-Bryant Chuck. Nos. 6 & 15A. 1-Besty No. 17 double end. Lathes - Engine - Miscellaneous

thes — Engine — Missetlaneous

— American 20x10 B. G. Q. C.

— Carroll & J. 14x8, Q. C.

— Hamilton, 16x6, B. G., Q. C.

— Ledge & Shipley 16x6, 18x8, 20x10, 22x10, B. G., Q. C.

— Sidney 20x10, B. G., Q. C.

— Sidney 20x10, B. G., Q. C.

— LeBlond 17x12, 21x12, B. G., Q. C.

— Caraves & Kluman 18x6, 18x8, 9x8, B. G. Q. C.

— Caraves & Kluman 18x6, 18x8, 9x8, B. G. Q. C.

— Caraves & Kluman 18x6, 18x8, 9x8, B. G. Q. C.

— LeBlond 17x12, 21x12, B. G. Q. C.

— LeBlond 17x12, B. G. Q. C.

— LeBlond 1 I-L. & S. Duplex 12x24 °Cr. Pin. 4-American 14x6, 16x6, 18x8. 1-14\*x8! Carroll & Jamieson. I - Sidney I 4x6 B G., Q.C., T.A. I - Bradford I 6 B.G., Q.C., T.A.

1-Monarch 16x6 B, G. Q. C

Lathes-Turret and Screw Mchs. 2-Foster No. 1-B-20\* swing. 2—Coster No. 1-B—20" swing. 2—Gisholt No. 2, D. M. D. 2—Gisholt No. H21 1—Warner & Swasey No. 6. 2—Millholland 1" & 1%2" D. M. D.

2-Pratt & Whitney 20". Milling Machines-Vertical 2-Becker No. 5.

Milling Machines-Horizontal 1-Milwaukee No. 3B, d. o., v. h. -Brown & Sharpe No. 3. -LeBlond No. 4 Plain. I—Hendey No. 2 Universal. I—Kempsmith No. 3 Plain.

I-Brown & S. No. 12. I-Steptoe Hand with Vert. Att. -Garvin No. 14. 5-Standard Hand. 1-Bullard 42" Boring.

Presses-Punch 2-No. 14 Williams-White. 1 – McDonald No. 4 O. B. I. 2 – Consolidated No. 4 O. B. I. 1 – Marshalltown No. 3 O. B. I. 1-Bliss No. 2 O. B. I.

Planers Cincinnati 48x48x301 M. D. Cincinnati 42x36x16 Gray 30x30x141. Gray 26x26x81. Gray 26x26x61

Gray 24"x24x61. Screw Machines-Automatic I-New Britain No. 24 Mult. spdl. 4—Gridley 3/4" 4-spindle.
6—National Acme Nos. 51, 53 and 55 Multiple spindle.

Shapers 1-Gould & Eberhardt 24". |-Cincinnati 20" Crank. |-Pratt & Whitney 14" Crank. -Whipp 16" Crank. 1-Lodge & Davis, 16" Crank.

Miscellaneous Bolt Threader, Acme. Broach, LaPointe No. 3 M. D. Coiling & Cutting, Baird No. 2.

The Indianapolis Machinery & Supply Co., Inc. 1960 S. Meridian St., Indianapolis, Indiana

### Such Good Values-We Will Ship Open Account to Satisfy You

We maintain our own Machine Shop for reconditioning our machines. Every tool sold on a 30 day guarantee trial.

### **Every Tool Listed A Good Buy**

LATI	HES
42"x24' Pond \$1000 42"x44' Pond 1259, 20"x8' Atlas q. c., d.b.g. chuck 550, 18"x8' Hendey q. c. yoke head 785, 18"x8' Gidding & Lewis q. c. 475, 16"x8' Le Blond q. c., st. equip. 425, 16"x6' Goge & Shipley q. c. 375,	16"x6' Bradford, q. c. tap. att., \$495. 16"x8' Cisco q. c. chuck
SHAPERS, PLANER 21" Smith & Mills Crank b.g., \$700.	S AND SLOTTERS

16" Smith & Mills open belt dr. 100. 30"x30"x8" Cincinnati. 650. 18"x18"x4\frac{1}{2}" P. & W. p. f. to hd. 250. 20" Putnam Crank Slotter, 17" Smith & Mills spiral bull gr. 300. Lodge & Davis, cone dr. .. 125. 16" Gould & E. Crank b. g...... 625. 16" Hamilton Crank, b. g...... 450. table 42" diameter

725.

20" Gould & E. Crank b. g.....

#### 42'x24' Pond Lathe, triple geared 42'x44' Pond Lathe, triple geared \$1000.00 \$1250.00 **DRILL PRESSES**

die Allen b b #" can \$ 550

28" Superior, s. m., d. b. g 200.	sommer Allen D. D., Cap 350.
26" Prentice, s. h., t. a. s. p. d. 350.	12-spindle Moline Rail, 90"
22" Snyder sliding hd. b. g. p. f. 150.	Spread No. 5 MT 850.
2-sp. Rockford Sensitive (2) ea. 150.	20" spdl. Moline Rail, 1 15/16"
4-sp. Kokomo Hi-Spd. I" cap. 575.	spindles 1200.
4-spindle Kern b. b., 4" cap., 425.	No. 30 Natco arr. 34-sp., r. h., 2750.
4-spindle Barnes all geared 575.	No. 2 Fox Mult. equip. 8-spdl. 375.
14" Canedy Otto sliding head, motor d	
GRIN	
10"x50" Norton Plain \$ 875.	No. 11 Brown & Sharpe self-
10"x72' Landis pl. self-cont 1250,	contained s. p. d \$ 850.
10"x72" Brown & Sharpe Pl 850.	24"x24"x6' Pond Pl. type Surf. 475.
6"x32" Norton Plain (2), each, 350,	36" Knife Grinder, Motor Dr. 350.
No.70 Heald Int., water equip. 850,	No. 9 Valley City Disc & Surf 100.
5"x14" Greenfield hydraulic 250,	No. 6 Rivett Internal
6"x18" Landis Plain, scon. 525.	No. 1 W. & M. tool & cutter 400.
P. & W. Vert, Sur. tbl. 12"x40" 875.	No. 2 Union Cutter Forming . 375.
SCREW M	
No. 3 W. & S. Uni. Brass Lathes 375.	4" Gridley 4-sp. Auto. (6) each \$ 350.
No. 4 Foster, hand screw, fr. hd. 325.	11 Gridley 4 sp. Auto. (4) ea. 450.
24" Acme Turret comlete eq 325.	No. 6A P. & J. Chucking Mchs.
No. 4 B. & S. Turret, p. f 750.	serial over 18,000 (2) ea 650.

1" P. & W. (2), each. No 2B.&S. Hand, ex. cond. (2)ea. 400. MILLING MACHINES No. 3 LeBlond Pl., all grd. fds. 8 525. No. 14 American Plain all grd. 375. No. 1 Kearney & T. pl. s. p. d. 525. No. 12 B. & S. Prod., (2) ea. 250. No. 12 B. & S. Prod., (2) ea. 250. No. 6 Becker Vert. Late type 1150. No. 6 Becker Vert. Ex. cond... 850. No. 5 Becker Vert., sl. hd....... 750. No. 4 Garvin Profi. mtr. dr. (5) 300. 30"x30"x12' Ingersoll Hor. Sp. 800.

MISCELLANEOUS 60" B. & S. Gear Cutter No.6 \$1150. 1" Acme Stud Threader \$400. No. 1 Baker Keyseater 1 grap. 275. 2" Williams Pipe Machine..... 2" Robbins Pipe Mch., M. D. No. 1 Davis Keyseaters, (2) ea. 200 125. 6" Curtiss Pipe Mch. arr. m. d. 250. I" Garvin Horiz. Tapper. 200 amp. Lincoln Arc Welder No. 14 Higley 6" Cap Cold No. 3La Pointe Hudson Broach 450. 375. No. 6 Fellows Gear Shaper .... 250. 12x12" Racine m. d. Hack Saw. Cut-Off Saw ... 275.

TOLEDO MACHINERY EXCH. CO. 18 North St. Clair St., Toledo, Ohio

### NEW 3 PHASE MOTORS CHEAP-FROM 1/2 H. P. UP

LATHES

12"x 8' Cleveland, geared head. 14"x 6' Carroll-Jamieson, new, q. c. 14"x 6' Hamilton, grd. hd., motor dr. 14"x 6' Monarch, quick change. 18"x6' American quick ch., taper att.

18"x6" American quick ch., taper att. 16"x 8" Hamilton, quick change. TURRET LATHES and No. 52 National Acme automatic.

No. 52 National Acme automatic, No. 53 National Acme automatic. No. 54 National Acme automatic. 21" Gisholt, motor drive. 24" Gisholt, motor drive.

No. 10 and No. 15 Excelsior, foot.
Nos. 3-A & 5-A Willard inclinable.
Nos. 1, 14, 2, 24 Robinson, new.

4-spindle Demco H. S. new. 4-spindle Avey H. S. No. 1 Baush multiple. No. 310 Baker heavy duty. Baush 5' radial. Hilbert 2' radial.

No. 13 American plain. No. 4 LeBlond plain. No. 25 Bilton. No. 7 Becker, Lincoln type. No. 25 Becker plain, power feed.

No. 78 W. & M. surface. 6"x18" Fitchburg plain. 16"x42" Landis universal. 36" and 66" Yates plate. No. 60 Heald cylinder.

Band saw, Clark, compound.
Band saw, Napier 10"x10".
Blower, No. 6 Fiqua, pressure,
Blower, positive pressure, Leiman
Boring mill, Colburn No. 3, tur. hd.
Brake 10", Keene. 18 ga.
Broaching mchs. 1 and 3 LaPointe.
Compressors, 6x5, 8x8 and 9x8.
Furnace, Weco electric.
Gear cutter, No. 3—98" D. & S.
Gear miller. Bilton No. 1.
Hammer, 180 lb. Standard drop,
Pipe machines, 2", 4" & 6".

Threading m
Washing m

17"x 8' LeBlond quick change, 18"x10 American, quick change, 20"x10' Hamilton, rapid production. 24"x14' LeBlond.

20"x10" Hamilton, rapid production 24"x14" LeBlond. 24"x24" Prentice, with raising block. 8x60" & 3\perpx x60" Fitchburg, Lo-Swing SCREW MACHINES

14" capacity Smurr & Kamen. 14" Milholland. 2x24 and 3x36 J. & L. No. 1 Foster, 13/16" capacity, (2). 1" Pratt & Whitney.

24" Rockford, back geared, crank. 24" O. & S. back geared crank. 25" Smith & Mills, back grd. crank. 15" Smith & Mills, motor drive.

xcelsior, foot. | Nos. 1, 2 and 3 Federal o, b, i, lard inclinable, inson, new. | Emco bench. |

DRILLS and RADIALS

22", 24", 28", 28" and 32", sliding hd. 24" Bickford, tapping attachment. 32" Hoefer, sliding head. 6' Ceiling drill. 4" Stover. Hole Hog, No. 68-D, 7-spindle

MILLING MACHINES

1. No. 2 H Brown & Sharpe plain.
1. Ingersoll 34" x 20" x 5" horizontal
1. motor drive.
1. No. 12 Brown & S. (Lincoln Type).
1. No. 4 Lees Bradner thread miller.
1. No. 4 Lees Bradner thread miller.

GRINDERS
Schmitt cylinder grinder.
No. 3 Ohio universal tool and cutter.
J B X, W. & M. tool and cutter.
No. 10 Besly 18" double disc.
No. 20 Bryant, chucking.

Planer, 24"x24"x6' American.
Planer, 36"x36"x16' Gray, 2 heads.
Planer, 42"x42"x12' Gray, 2 heads.
Punch & shear, \$\frac{1}{2}\text{x}(6\text{x})\text{x}, 2 heads.
Punch & shear, \$\frac{1}{2}\text{x}(6\text{x})\text{throat.}
Riveting hammers, Nos. 1, 2, 3, 4-A
High Speed.
Sand blast, Boland.
Scale, 1500 lb. Toledo, dial type,
Slear, 60" Peck, Stow & W., 18 ga.
Shear, Ko. 362 Robinson.
Shear, circular, Pettingell, 60" thrt.
Threading mche., W. & P. 2-spindle.
Washing machine, paris Blakeslee.

OSBORNE E SEXTON

## Modernize Your Plant!

Investigate Our Low Prices

### **BOLT CUTTERS**

-Ajax No.14-KK steel bed header **BORING MILLS** 

1-Bullard 24" vert. N. E. type, 3-Betts 7', 8', 10' vertical.

1-Bement Miles 10'-16' exten, ver.

I-Bement Miles 10 -16 exten, ver I-Niles 10-16 extension vertical.
I-Niles 14' vertical.
I-Niles 14' vertical.
I-Bement Miles 24' horizontal.
I-Bement Miles 24' horizontal.
I-Rockiford No 2 horiz. 34' bar.
I-Landis No. 35-34' bar, horiz.
I-N-B-P 4'' bar table type, horiz.
I-Barrett No. 2 boriz. 5' bar.

DRILLS - Multiple Spindle
4-Baush Nos. 1 & 2, rd. & rect. hd.
2-Fox D-31 round head. -Natco Nos. 12, 13, 14, 30 and 37

round and rect. head. -Moline No. 5-D cylinder borer.

DRILLS - Upright 1-Colburn D-4.

6-Henry & Wright 1, 23, 4-spdl. 1-Leland & Gifford 2 spindle.

|-Sipp 4 spindle, |-P, & W, Nos, 1 & 12 deep hole, |-Raker No. 310,

DRILLS-Radial

-American 2 plain s. p. d. -American 3' tri. purpose, s. p. d.

-Cincinnati-Bickford 4' pl. s. p. d.

1—Hammond 4' plain.
1—American 6' pl., triple purpose.
1—Baush 6' plain belt drive.
1—N-B-P, 96" plain motor drive.

1-Cincinnati-Rickford 5' univ.m.d. 1-Dreses 5' universal m. d.

1-Cincinnati 6' universal. 1-Bickford 6' universal s. p. d.

GEAR CUTTERS 12-B & S.3x36,4x36,No.6,60" No.13 6-Barber-Colman No. 12.

7-Lees-Bradner No. 5-A. 3-Fellows Gear Grinders

3-Fellows Gear Grinders. 8-Fellows Nos. 6, 61, 65, 615. 4-Fellows No. 7 high speed. 3-Gleason 6", 11", 18".

GRINDERS

-Landis 6x18, 10x24, 10x36, 12x36, 12x96 plain

6-Norton 3x18, 6x32, 10x36, 10x50, 16x36 plain

-Norton-BA 10x18 plain, 1-Blanchard No. 16 surface. 1-Diamond No. 2 surface.

1-P. & W. 8-in. rotary surf. 1-P. & W. 22x7 surface. 1-P. & W. No. 14 surface.

1-Pearson-Arter 8" rotary surface.

1—Pearson-Arter 8 rotary surf.
1—Heald No. 22, 8" surface.
3—Heald No. 28 surface12—Heald Nos. 65, 70, 75, 80 int. -B. & S. No. 3 universal.

-Thompson 12x36 universal. -Gardner No. 24 horizontal. -Norton 16x50 crank.

-Landis 10x52 cam. 1-Bath Spline.

MILLING MACHINES

6-B. & S. Nos. 2, 2-B plain, 8-Cincinnati Nos. 14, 2, 3 & 4 pl. -Kempsmith No. 3 universal. LeBlond No. 3 universal. -B. & S. No. 3-A universal.

1—Cincinnati No 3-A universal, 4—Becker Nos. A, B, C, 6 vert, 1—Cincinnati No. 3 vertical.

1—Taylor & Fenn vertical. 8—Briggs Type "A" mfg. 1—Ingersoil 24"x24"x10".

Ingersoll 24x24x16' adi, rail. 1-Kearney & Trecker No. 1. A mfg. 2-P. & W. 5". 12" mfg. 6-P. & W. 6x14, 6x48, 6x80 thread.

LATHES 3-Hendey 14"x6',16"x6',16"x8',g.h.

2-Sebastian 18"x5'. 2-Springfield 18"x10'

2-Reed Prentice 20"x10', s. p. d.; 24"x12' s. p. d: 27"x12' s. p. d. 1-F. F. Reed 32"x27'. 1-Niles 38"x24'.

-Niles-Bement-Pond 42"x24'. 1-McCabe 48" double spindle. 7-LeBlond No. 12 multicuts.

Lathes of all sizes and types.

**PLANERS** 1—American 36"x36"x20', 3 heads. 1—Gray 38"x38"x20', 3 heads. 1—N. B. P. 48"x48"x12', 3 heads.

-Cincinnati 48"x48"x16' 4-heads

SCREW MACHINES—Automatic 12—Cleveland 6", 4", "A", "B", 3—Cleveland 6", 4", 4", "B", 3—Gridley 14", 24 4 spindles, 11—Gridley 34", 44", 24' single spdl, 6—New Britain Nos, 23, 24, 33, 3—Nat'l Acme Nos, 52, 56, 515, 11—P. & J. No. 6-A, No. 6-A,

Brown & Sharpe Nos. 0, 00G, 2G.

SHAPERS -Cincinnati 16"

2-Gould & Eberhardt 24", 20". 1-Lynd-Farquhar openside.

Partial list of our stock; send us your inquiries. Ask for complete catalog.

408 Broome St., MOREY AND CO. INC. 408 Broome St., NEW YORK, N. Y.

# The following machines are left in the plant we are liquidating:—

- 1-No. 3½ Bliss toggle drawing press, belt drive. Will draw and lift out 5".
- 1-3½C Bliss toggle drawing press, belt drive, double geared. Will draw and lift out 8.
- 1-No. 3% Bliss toggle drawing press, belt drive, double geared. Will draw and lift out 9".
- 1—No. 5 Bliss toggle drawing press, belt drive, double geared. Will draw and lift out 10°.
- 1-No. 5S Bliss toggle drawing press, tie rod frame, belt drive, double geared. Will draw and lift out 12".
- 1—No. 23 Bliss inclinable press, geared, 6<sup>8</sup> stroke, with Marquette air cushion.
- 1-No. 30 Bliss arch press, 2" stroke.
- 4-No. 39 Bliss horn presses, with tables.
- 14-Spinning and beading lathes.
- 1-No. 3 Bliss double seamer.
- 1-No. 242 Niagara power square shear.
- 2-No. 105 Bliss circle shears, 16 ga. cap.
- 1-No. 22P Logeman hydraulic baler with 20 H. P. 220 volt 3 phase motor.
- 1-20" Kelly back geared crank shaper.
- 1—No. 2 LeBlond universal miller, vertical attachment and dividing head.
- 1-26"x10" Canada Machinery lathe, double back geared, quick change.
- 1-30"x10" Boye & Emmes lathe, taper and oval chuck
- 3-10 KW spot welders.

The prices are low as everything has to be sold For prices and further information write or wire

A. D. WHITE MACHINERY CO. 108 N. Jefferson St., Chicago, III.

## "Restored" Machines

#### MILLERS

-Cincinnati Plain Nos. 2, 3, 4, 5. -Cincinnati Vert. Nos. 3, 4. -Cincinnati Universal No. 2, 3, 4. 5-Milwaukee Pl. No. 1, \$2-B, 3-B. 2-Milwaukee Vert. No. 2\$.

7-Kempsmith Plain Nos. 23. 2-Kempsmith Univ. Nos. 2, 3 5—Le Blond Univ. Nos. 2, 2‡, 3, 4. 2—Knight No. 2, No. 3. 5—Becker No. SD, No. CS.

### LATHES

1-90" Putnam Wheel.

-84x36 Putnam. -72x28 Putnam.

-72x58 Putham. -72x58 N-B-Pond. -59x28 N-B-Pond. -56x18 N-B-Pond. -50x36 Pittsburg.

-48x24 N-B-Pond. -48" N-B-Pond Wheel.

-42x39 Putnam. -42x28 N-B-Pond 1-36x14 Bridgeford. 4-30x20 American.

2-30x12 American. 2-24x12 Schumacher-Boye.

1-21x10 Le Blond. 1-18x10 Lodge-Shipley. 1-18x10 Hendey. 1-17x10 LeBlond.

-16x8 Monarch. 1-16x6 American, 1-14x5 Monarch.

1-12x6 Davis. 1-12x5 Sidney.

### **GEAR CUTTERS**

4-B-Coleman Nos. 3, 12. 4-B. & Sharpe Nos. 13, 3, 5. 2-Newark No. 2-B. 3-G. & E. Nos. 96-H, 18-H, 12-H. 9-Gleasons, 6, 11, 15, 18".

GRINDERS 6-B. & Sharpe Nos. 1, 2, 3, 13. 9-Norton 18x96, 14x72, 14x80, 10x72. 2-Blanchards, No. 16 Surface. 1-Diamond No. 5 Surface.

8—Heald Nos. 60. 65, 79, 72. 3—Besly No. 1, No. 2, No. 10. 4—Landis 16x48, 16x68, 16x72. 1—Sellers No. 1 Drill.

1-B. & Coleman No. 2 Hob.

### BORING MILLS

-16' Betts Vertical, -12' Niles Vertical, -10-16" Niles Extension, -100" N-B-Pond Vertical,

-100 N-B-Folia Vertical, -96" Betts Vertical, -62" N-B-Pond Vertical, -52" Gisholt Vertical, -48" Colburn Vertical,

-48" Colourn vertical, -24" Bullard Vertical, -54" Bar Niles Horizontal, -42" Bar N-B-Pond Horizontal,

60" N-B-P Duplex Horiz. No. 3 Universal Horizontal. No. 3 Barrett Cylinder.

**AUTOMATICS** 6-B & S. Nos. 00, 0, 2

9-Gridley 4. 3. 14, 14, 24, 2-4 16-14" Fays. DRILLS (Multiple Spindle)

3-Moline Nos. 11-D, 5-D, 2-D. 4-Baush Nos. 2, 3, 4. 6-Natco Nos. 12, 13, 14, 15, 37.

DRILLS (Radial)

-3' American Plain.
-4' American Plain.
-4' Cincinnati-Bickford Plain.
-5' Western Plain.

-5' Western Plain.

1-6' American Plain, 1-7' Dreses Plain, 1-6' American Universal, 1-5' Dreses Universal,

DRILLS (Upright) 6-Aurora 22, 24, 26, 30". 12-H-Wright 1, 2, 3, 4, 5, 6 spindles. 6-Edlund 1, 2, 3, 4 Spindles. 3-Minster No. 2-D.

3-Minster No. 2-D. 4D. 4D. 4D. 4D. 1D. 2D. 4D. TURRET LATHES AND SCREW MACHINES 9-W. & S. Nos. 2, 4, 6, 2-A, 3-A. 4-P. & W. 1x15, 1\(\frac{1}{2}x18, 2x26, 3x36, 3-\text{Libby 18", 26".}

PLANERS -24x24x10 W-Blaisdell.

-30x30x8 N-B-Pond -30x30x12 Cincinnati, -36x24x12 D. & H. Openside, -36x36x10 N-B Pond, -36x36x14 N-B-Pond,

-42x42x22 Cincinnati. -60x60x18 Cincinnati.

-72x72x16 D. & H. Openside, 1-96x48x12 D. & H. Openside.

Partial List of our stock; send us your inquiries. Ask for our Monthly Bulletin.

## Simmons Machine Tool Corp'n

Buffalo, 601 Morgan Bldg. New York, 149 Broadway Albany, 1700 Trey Road

Loy & Nawrath Power Brake, motor drive, capacity 8'x1/4".

No. 2-Dreis & Krums Hand Bending Brake, capacity 10"x16 gauge.

Blass Double Crank Press, 38" between surgishts, gazred, vt. 15,000 lbs.

Long & Alistatter Plate Shear cap, 3"x76" m. d.

100.000 lb. Riche Festing Hachine.

UPSETTERS: 1", 1¼", 1½", 2", 2½", 3", and 4"; steel frame. BULLDOZERS: Nos. 1, 2, 3, 4, 5, 7, and 9 Williams & White.

HAMMERS: Bradley Upright—50, 100, 150, 200, 300 and 500 lb. Bradley Cushioned Helve—40, 60, 80, 100 and 200 lb. No. 2B Nazel. 1500 lb. Steam.

SHEARS: 1½° round Kling. 3¼° round New Doty Guillotine. No. 10 and No. 20 Quick Work Rotary. 1½° and 2½° Alligator. ½° and ¼° Lennox Throatless.

PRESSES: Straight Sided—52A Waterbury with 6 hole dial. 37½ Bliss, 6\* stroke. No. 2 Billings & Spencer Trimming. Solid Back—No. 3 and No. 4 Stiles. No. 3A Bliss, adjustable bed. No. 16 Bliss Horning. Inclinable—No. 16 Stoll, No. 6 Adriance. No. 5 Consolidated.

PUNCHES: Rock River 16" throat, cap. 1" through 1". E. F. Cleveland, 24" throat, 1¼" through 1". No. 2 Hilles & Jones, 20" throat, 1" through ¾", rapid action. Long & Allstatter, 48" throat, 2¾" through 1". Williams & White No. 14, 1¼" through 1", plane tbl.

DIE SINKERS: No. 2 and No. 3 Pratt & Whitney. No. 6 Becker.

BORING BAR, Barrett Horizontal 33/4" spindle.

DRILLS, No. 30 Natco Multiple, No. 3 Bausch Multiple. SLOTTER, 18<sup>8</sup> Newton; SHAPER, 24<sup>8</sup> American.

THREADING MACHINES: I and 2 Spindle Acme and Landis. Single and Double Spindle with and without lead screws, ½\*, 1\*, 1½\*, and 2\*.

THREAD ROLLERS: 1/4" 3/4" and 3/4" capacity.

PIPE THREADERS: Saunders 4". Williams 8". Crane 10".

COLD HEADERS: Single and Double Stroke, Open and Solid Die, 1/4° to 5/6°.

BOLT TRIMMERS: Bolt Headers, Bolt Pointers, Nut Tappers, Hammer Headers, and Hot Nut Pressed Nut Machines.

NUT TAPPERS, 6 and 8 spindle National and Acme auto. ½ to 1½ s. TUMBLING BARRELS, Abbott Burnishing and various types and sizes. FURNACES: No. 65 American Gas. No. 152 Rockwell Rotary. No. 1A American Gas Carbonizing.

CHIP CRUSHER OR SHREDDER, Williams.

FORGING AND TAPERING ROLLS.
GRINDERS, Double Disc various makes and sizes,

COLD SAWS, Espen-Lucas and Newton.

SPOT AND BUTT WELDERS, various makes and capacities.

HOT SAWS AND BURRING MACHINES, No. 2 Ajax.

COMPLETE 10° ROLLING MILL.

### Donahue Steel Products Co.

Specialists in Forging, Bolt, Nut and Rivet Machinery

74th and Ashland Ave., Chicago, Ill.

# Rebuilt Machine Tools At Attractive Prices

### DRILL PRESSES

12" Leland & Gifford high speed bench Single spindle No. 2 Henry & Wright high speed

2-spd. Henry & Wright high speed 3-spd. Henry & Wright high speed 4-spd. Allen high speed 2-spd. Barnes 24\* camel back. 2—No. 14 Colburn heavy duty 2—No. 314 Baker heavy duty

-No. 416 Baker heavy duty 24° Cincinnati sliding head 32\* Aurora sliding head

36" Aurora sliding head 2-Barnes horizontal single spindle

### **GRINDERS**

1—No. 1 Brown & Sharpe universal 2—No. 2 Brown & Sharpe universal 1—No. 3 Brown & Sharpe universal 1-10x36 Thompson universal 3-No. 10 Brown & Sharpe plain I-No. 11 Brown & Sharpe plain -6x32 Norton plain

-16x72 Landis plain 3—No. 65 Heald cylinder.
2—No. 70 Heald internal
1—No. 2 Brown & Sharpe surface
1—20" Heald rotary surface

3-71/2 HP U. S. heavy duty magging grinders.

### LATHES

3-12"x51 Hendey q. c. tie-bar head 2-14°x5' Bradford q. c. engine 3-14"x6' Hendey a, c, tie-bar head 2-16°x8' Henedy q. c. tie-bar head 1-16°x8' Lodge & Shipley selective

geared head. 1-18°x8' LeBlond q. c, gear engine 1-18°x8' Hendey q. c. tie-bar head

1-20"x81 Hendey q. c. tie-bar head

I-McCabe 2 in I lathe, 28\*x56\*x16' I-No. 3A Warney & Swasey

No. 00 Brown & Sharpe automatics -No. 6A Potter & Johnson

-No. 4 Warner & Swasey turret friction head.

### MILLING MACHINES

2-No. 1 Kempemith plain

I—No. 1½ American plain
I—No. 2 Kempamith plain
I—No. 2 Brown & Sharpe plain
I—No. 2 Cincinnati plain

I-No. 3 Cincinnati plain -No. 4 LeBlond plain

1-No. 1 Cincinnati univ. with D. H. 1-No. 1D Brown & Sharpe universal with D. H.

I—No. 2 Cincinnati univ. with D. H.
I—No. 25 Ohio universal with D. H.
I—No. 3 Cincinnati vertical
I—No. 2M Potter & Johnson auto.
I—12<sup>n</sup> Cincinnati production

### PLANERS

1-24"x24"x6' Whitcomb 1H 1-24"x24"x8' Cincinnati 1H 1-26"x26"x8' Woodward & P. 2H. 1-36"x36"x12' Bickett 2H

### **SHAPERS**

1-15" Potter & Johnson universal 2-16" Gould & Fberhardt 1-20° Gould & Eberhardt -24" Gould & Eberhardt

### **MISCELLANEOUS**

2-No. 1 Garvin vertical tapper 2-No. 2 Garvin vertical tapper I-No. 00 Schuchardt & Schutte gear

hobber I - No. 98F Toledo tie-rod triple crank

1.—No. 1½ Toledo toggle press 1.—No. 5 S Bliss toggle press 2.—10\* Allis Chalmers centrifugal

All of the above equipment, together with many more are available for immediate delivery, full details and price will be mailed upon receipt of a letter from you

### **Riverside Machinery Depot** 241 St. Aubin Ave., Detroit, Michigan

# EXTRA SPECIAL

We offer subject to prior sale the complete line of high grade machine tools we are disposing of for a motor car manufacturer on account of his discontinuing one of his models. All machines are motor drive. Here is a real opportunity. Wire for appointment to inspect. We also solicit your inquiries.

Palmer - Edwards Company 906 Leith St., Flint, Mich.

# Automatic Screw Machines

No. 2G, No. 2. Brown & Sharpe Cut Off, Turret Forming, and full Automatic Screw Machines. 1/2", 76", 11/4", 2", 21/2", 31/4", 41/4", 63/4", Model A. Five

Hole Cleveland Automatic Turret Machines.

1/2", 7/8", 11/4", 11/2", 2", Model B. Cleveland Automatic Plain Machines.

21/4", 31/4", 41/4" Single Spindle Gridley Automatics. 7/8", 11/4", 13/8", 21/4" Model F. Four Spindle Gridleys,

Automatic Machine & Engineering Co. Detroit, Michigan 2821 Brooklyn Ave.,

## **OUALITY TOOLS**

-No. 4-B Becker Vertical Miller, -No. 1 Kempsmith Universal Miller, fully equipped.

1—No. 17 Actingment Onlyces Miller, dividing head, vise and arbors.
1—No. 1/2 Valley City Universal Miller, dividing head, vise and arbors.
1—No. 1/2 Rockford Plain Miller with vertical head.
1—No. 1/2 Garvin Plain Miller,
1—No. 2/2 Ghio Universal Miller, vertical hd., dividing hd., vise arbors.
1—No. 3 Kempsmith Plain Miller.
1—No. 3 Chempsmith Plain Miller.
1—No. 2 Oakley Universal Tool & Cutter Grinder. Fully equipped.

I—No. 2 Oakley Universal Tool & Cutter Grinder. Fully equipped.

1–3 spindle Allen HS BB Drill. No. 2 Morse Toper.

1–4 spindle Allen HS BB Drill. No. 2 Morse Taper.

1–5 spindle Leland-G. HS BB Drill, No. 2 M. T., pwr. feed to each sp.

1–28 "Cincinnati Drill. Sliding head BG-PF-SPD.

1–34 "Barnes Drill. Sliding head BG-PF-SPD.

1–12 "Smith & Mills Shaper.

1–16 "Milwaukee Shaper, Back Geared.

1-16\* Steptoe Shaper, Back Geared. 1-16\* Whipp Shaper.

1-21\* Smith & Mills Shaper, B. G.

1-24" Rockford Shaper, B. G.

I – No, 4 Toledo O B.I. Funch Press. | 1 – No, 1 Toledo O, B.I. Punch Press. 2 – No, 18 Bliss O, B. I. Punch Press. | 1 – No 3 R & K. O.B.I. Punch Press. 1 – No 2 B Bliss O, B. I. Punch Press, genered, 4\* Strote.

### GEORGE M. BERNSTEIN & CO.

221 N. Elizabeth St., Chicago, Illinois

Phone: MONroe 4077

## LIQUIDATING PLANT

All Modern Equipment-Partial List Must Sell Property Sold

MILLING MACHINES Nos. 2, 3, 4 and 5 Cincinnati Rectangular Over Arm High Power Plain, Intermittent Feed and Power Auto. Quick Traverse and Reverse. Sgl. Pulley Dr. Nos. 2, 3 and 4 Cincinnati High Power Vertical, Intermittent Feed and Power Automatic Quick Traverse and Reverse, S. P. and motor drive.

Nos. 2, 3 and 4 Brown & Sharpe and LeBlond, Plain and Vertical. S. P. D. WARNER & SWASEY TURRET LATHES

Nos. 2-A and 3-A Warner & Swasey Universal Hollow Hexagon, (4) bar and

chucking equipment, serial numbers from 184,600 to 248,380.

24" Gisholt Turret Lathe, attachment, 61/4" spindle bore.
BORING MILLS

36" to 121 Vert. Boring Mills, Cincinnati, Bullard, Gisholt, all Pwr. Rapid Trav. No. 2 Rockford Horizontal Boring, Drilling & Tapping Machine, S. P. D. GEAR MACHINERY

No. 12 Barber Colman Gear Hobber, equipped for spline shaft work, Nos. 6 and 61 Fellows Gear Shapers

DRILLING MACHINES

31 to 61 Radial Drills Cincinnati-Bickford and American. Colburn No. D-2, No. and 4 and No. 14, also Foote Burt Heavy Duty Drills. Leland-Gifford and Avey one, two and four Spindle Ball Bearing Drills.

Engine Lathes-Shapers-Planers-Power Presses, Etc.

### Sun Machinery Company, Inc. Newark, N. J. 39-41 Hamilton St.,



## RECONDITIONED ACHINE TOOL



Completely Reconditioned and Ready for Immediate Shipment - Satisfaction Guaranteed, with 30 Days

Return Privilege by Prepaying Freight.	
B-2429-31 Foodick Radial Drill	\$ 650.00
B-2695-41 Bickford Radial Drill	725.00
B-1619-61 American Plain Radial Drill	1350.00
B-3129-No. 2 Diamond Surface Grinder	1050 00
B-2555-Little Giant Power Hammer 50 lbs.	145 00
B-2853-Webster-Perks Polisher and Buffer No. I Floor Type	75.00
B-3234-24* Cincinnati Shaper	1100.00
B-1716-15* Hendey Friction Shaper	275.00
B-3123-26*x26*x10* Gray Planer	750.00
B-3560-30*x30*x10! Liberty Planer	1650.00
B-3542-48*x36*x14* Cincinnati Planer	1400.00
B-2583-No. 14 Brown & Sharpe Plain Grinder	750.00
B-3430-Schumacher & B. 33" Lathe, raised to 36"x161/2" bed.	
B-3095-No. 2-A Brown & Sharpe Universal Miller	1900.00
B-3588-No. 2 Brown & Sharpe Universal Miller	
B-3424-40* King Vertical Boring Mill	2500.00

The E. A. Kinsey Company 331-335 West Fourth St., Cincinnati, Ohio

BRANCHES: INDIANAPOLIS, IND. LOUISVILLE, KY. HAMILTON, OHIO, DAYTON, OHIO, COLUMBUS, OHIO

# LOOK These-Machines-are-all-in-good-Running - Condition. Act - Quick

14"x8' Sebastian Lathe	\$125.00
18"x8' Monarch Quick Change Lathe	290.00
16"x8' American Quick Change H. D. Lathe	450.00
No. 4 Becker Vertical Miller	325.00
No. 2 LeBlond Plain Miller	
4 Ft. Bickford Single Pulley Gear Box Radial	750.00
2" Capacity Rockford Heavy Duty Drill	100.00
Henry & Wright Ball Bearing 12"O. H. Drill	
Planer, 30"x30" x8' Cincinnati 1 Head	485.00
Shaper, 24" Steptoe Back Geared Crank	
Grinder, No. 12 Brown & Sharpe Plain Cylindrical	
Grinder, Yankee 0" to 2 Drill	40.00
Grinder, Heald 75 Chucking	135.00
Grinder, No. 14 Walker Automatic Surface	335.00
Grinder, No. 4-23" Disc Gardner	260.00
Press, No. 91-C-Toledo Double Crank	725.00
Press, No. 21-Bliss Open Back Inclinable	300.00
Punch, No. 6 Whiting 1x1 S. End 12" Throat	225.00
Turret, Lathe-No. 2A Warner & Swasey Geared Head	
Shear, 8 ft. Power Square (20 gauge)	100.00
Saw, 12x15 Racine with Speed Box	
Saw, 8x8 Atkins High Speed	80.00
Shear, 36" Toledo OH. Drive Gap-16 Gauge	280.00

# The Jones Machine Tool Co. Front & Pike Sts., Cincinnati, O.

# **Exceptional Values**

25' Sellers vertical boring machine, motor drive.
10-16' Niles vertical boring machine, belt drive.
10' Niles vertical boring machine, motor drive.
71' American radial drill, motor drive.
78 spindle 26' Hill boiler shell drill, motor drive.
78 spindle 26' Hill boiler shell drill, motor drive.
78 spindle 26' Hill boiler shell drill, motor drive.
88 'Hoeffer tapping attachment motor driven drill.
No. 1 Saush multiple drill, rectangular head, belt drive.
No. 2 Brant & Whitney grinder, belt drive.
No. 2 Diamond surface grinder, belt drive.
No. 2 Diamond surface grinder, belt drive.
No. 2 Reid surface grinder, belt drive.
No. 4 Cincinnati Universal miller, come drive.
No. 4 Cincinnati Universal miller, come drive.
No. 2-M Potter & Johnson milling machine, S. P. D.
160' S. & S. gear hobber, motor drive.
No. 6-72' Brown & Sharpe automatic gear cutter.
No. 6-72' Brown & Sharpe automatic gear cutter.
1000 ton hydraulic die press.
15'-18' Dill slotter, motor drive.
100,000 lb. Olsen testing machine.
Automatic Transportation 75' lift electric tiering trucks.
2 ton Yale Electric hoist.

# Machine Tool Sales Company 710 Commercial Trust Bldg., Philadelphia, Pa.

# **Midland Quality Tools**

36"x36"x12' American Planer, 4 Heads, 24"x24"x 6' Gray Planer. 3' Western Radial Drill, Single Pulley Drive. 3t' Cincinnati Bickford Radial Drill, Single Pulley Drive.

No. 4 LeBlond Plain Milling Machine, Heavy Duty. No. 2 Cincinnati Universal Milling Machine, Automatic Feeds.

No. 6 Niagara, O. B. I. Punch Press. No. 3 Loshbough-Jordan, O. B. I. Punch Press. No. 2 Loshbough-Jordan, O. B. I. Punch Press. No. 1 Robinson Horning Presses, Back Geared.

180. 19 Robinson Froming Freeses, nac Gested.
18"xlib" New Sidney Engine Lathe, Quick Change Gear.
24 "xli2" Lodge & Shipley Engine Lathe, Quick Change Gear.
14"x b" LeBlond Engine Lathe, Quick Change Gear.
24" Rockford Back Geared Shaper.

15" Potter & Johnston Universal Shaper. 36"x12"x12" Diamond Surface Grinder, Auto. Motor Drive. No. 6 Gardner, Combination Disc and Surface Grinder, B. B.

You Always SAVE Money at Midland

#### MIDLAND STEEL & EQUIPMENT CO. 400 Se. Clinton St., Chicago, Illinois

Automatics, 14" Gridleys, 4 Sp. (2). Automatics, 14" Gridleys, 4 Sp. (2).
Automatics, No. 53 & 55 Nat. Acme.
Automatics, No. 52 New Britain.
Bolt Headers, 24" Ajax Iron Body.
Bolt Headers, 12" Acme, Iron Body.
Bor, mills, 44" N. B. P. Rapid Trav.
Bor, mills, 46" Colburn, 30" Rogera.
Boring McI., 4" Bar, Fosdick Hor.
Brake, 8 33/16" Robinson M.
Gear Cutter, 60" Brown & Sharpe.
Gear Hobber, Mo. 12 Barber-C.
Gear Hobber, No. 12 Barber-C.
Gear Hobber, No. 18 Blauchard m d. 42). Grinders, No. 16 Blanchard m.d., (2), Grinder, No. 2 Landis, Universal, Grinder, 16"x52" Landis self cont. Grinder, No. 1 W. & M. Tool & Cut. Grinder, No. 1 W. & M. Tool & Cut. Grinder, No. 103 Rivett Internal. Hammers, 300 lb. Beaudry, 1500 lb.

Hydraulic Forcing Pr., 50 T. Wood. Keyseater, No. 2 Catlin §"-2". Lathe, 84"x40" Putnam Geared Hd. Lathe, 25'50"x20" LeBlond Gap. Lathe, 50"x34" Pittsburg Cone. Lathe, 50°x34° Pittsburg Cone. Lathe, 26'48°x18° McCabe Dbl. Sp. Lathe, 45°x45° Pond, Geared Head. Lathe, 48°x24° Pond, Cone. Lathe, 28°x24° Pond, Cone Head. Lathe, 33"x12' Lodge & Shipley. Lathe, 27/30"x16' Reed-P., G. H. Lathe, 26"x12" Greaves-Klusman. Lathe, 28"x12" LeBlond, Taper. Lathe, 20"x10" Reed Prentice, Grd.

Head.
Lathe, 20"x8' L. & S. Selective Hd.
Lathe, 18"x8' L. & S. Selective Hd.
Lathe, 18"x8' L. & S. Selective Hd.
Latte, 18"x8' L. & S. Cone Head.
Lathe, 18"x8' L. & S. Cone Head.
Lathe, 18"x8' L. & S. Cone Head.
Lathe, 18"x8' Rahn-Larmon. Cone.
Lathe, 18"x8' Rahn-Larmon. Cone.
Miller, No. 33 Kempamith Prod.
Miller, No. 35 Milwaukee.
Miller, No. 35 Milwaukee.
Miller, No. 3 Cincinnait, Cone.
Miller, No. 2 B. & S. Univ., Cone.
Miller, No. 14 Garvin, Vertical.
Millers, Nos. 2 & 14 Knight Vertical.
Pipe Mcha. x8 Saunders. 8" Jarceki. Head Millers, Nos. 2& 14 Knight Vertical. Pipe Mch., 6\* Saunders, 8\* Jarecki. Pipe Machine, 3\* Jarecki No. 7B. Planer, 24\*\*24\*\*56\* Woodward M.D. Press, No. 778 Bliss. Radial Drill, 34\* Bickford, Gr. Box. Radial Drills, 34\* Mueller, 3\* Western. Shapers, 25\*\* S. & M.; 20\*\* Cinti. Shear, 8\* x3/16\*\* Niagara No. 796. Turret Lathes, No. 4 Warner & S. Universal (2).

Turret Lathes, No. 2A W. & S. (2). Turret Lathes, Nos. 1B, 2B Fosters.

Bennett Machinery Co. **New York City** 

30 Church St.,

# **Special Bargains**

25 Motor driven lathes, sizes from 16x8 to 24x12, all quick change gear, some A. C. motor drive with 60 cycle, 220 volt, 3 phase motors, Reed-Prentice make, some D. C. motor drive with variable speed motors Reed-Prentice make, in excel. condition, at reasonable prices.

motors Reed-1 rentice make, in excel condition, at reasonable pr	1000.
I-Zeh Hahneman No. 8 Percussion Press	
1-Bliss 1200 lb. automatic Board Drop Hammer	725.
I-Becker No. 6 Vertical Miller, D. C., M. D.	750.
I-Becker Model AB Vertical Miller	550.
I-Newton 8* Slotter	300.
1-B. & S. No. 2 Univ. Grinder, compl. equipt. & assort. of wheels	875.
I-B. & S. No. 13 Universal Grinder, belted motor drive	
I-Barnes 221/2" Gang Drill 4-spindle	300.
1-Jones & Lamson 2x24-1-3x36.	
1-Sipp 2-spindle Drill with power feed H. S., B. B.	425.
1-Sipp 3-epindle H. S., B. B.	375.
I-Bliss No. 5 Styles Press B. G.	500.
I-New Britain No. 24 Chucking, with assortment of equipment	835.

Every Machine Is Fully Guaranteed LARGE ASSORTMENT OF OTHER GOOD USED TOOLS

### Broadway Machinery Co., Inc. 211 Centre Street, New York City

Send Us Your Inquiries

# REBUILT STAMPING PRESSES NEW

Bliss, Toledo, Ferracute, Etc.
1200 PRESSES IN STOCK—
Double Crank,
Inclinable, Knuckle Joint Embossing
and All Other Types

Ask for our latest catalogue-just out

Joseph HYMAN & Sons
STAMPING PRESS SPECIALISTS
2600 East Tioga St.. Philadelphia, Pa.

# **MACHINE TOOLS**

### Thoroughly Re-Conditioned

DRILL, 4-spindle Kokomo-Superior H. S., B. B., 20<sup>8</sup> swing, No. 3 Morse Taper, large table working surface of 23½ x60<sup>8</sup>. DRILL, 2-spindle Hoeffer 20<sup>8</sup> Stationary Head, P. F., B. G. DRILL PRESS, 4-spindle Allen H. S., B. B., No. 2 Morse Taper. GRINDER, 16<sup>8</sup> Valley City Disc. GRINDER, No. 1½ Walker Surface. LATHES, Hendey 13x5, 15x5, 18x10 Pan Type, Draw In Bar, Taper

LATHES, Hendey 13x5, 13x5, 18x10 Fan 1 ype, Draw In Bar, 1 aper Attachment, Quick Change, Collets.

LATHE, 12x7 Simplex Grd. Hd., Q. C. Gears, other standard equipt. MILLER, No. 2 Cincinnati, sgl. pulley drive thru gear box, veit. head. MILLER, Chicaso Hand, with power feed, capacity 9x5x5½.

PLANER, 24x24x4 New Haven, one head on rail, countershaft.

PLANER, 32x32x8 Pond, one head on cross rail.

PRESS, No. 4 Walsh O. B. 1., 2½° stroke, 3000 lbs.

PRESS, No. 5 R. & K. O. B. 1., 2½° stroke, 5001 lbs.

RADIAL DRILL, 3¹ American, cone drive, with countershaft, awinging table and tapping attachment.

awinging table and tapping attachment. TAPPERS, Rickert-Shafer Bench, (3).

All machines in A-1 Condition. Send Us Your Inquiries.

## SCHNEIDER MACHINERY CO.

604 W. Lake Street. Chicago, Illinois

PHONE: HAYmarket 0383

# Wood-Working Machinery

For a comprehensive display of new, up-to-date wood-working machinery and allied equipment. as well as lists of used machinery, consult

### **Wood-Working Machinery**

It's a publication similar to this, but devoted to the advertising of wood-working machines, including saw mill equipment. A copy will be sent you free on application.

Hitchcock Publishing Co., 508 So. Dearborn St., Chicago, Ill. BOLT CUTTERS, ½ Landis dbl.hd.1 "Greenfield, 2½" Acme, 1 "Landis lead screw.
BORING MILLS, 24 "Bullard, prod. type, 42" Bullard 'New Era', 42" Gisholt.
BORING BAR, 2½" Lucas, 2½" bar Bettam, 2½" Cleveland.
DRILLS, No. 0 and No. 1 Avey Bench, Allen single spindle ball bearing, 32" Mechanics, 34" Barnes, No. D. 66 Moline 4-spindle, 3-spindle Leland.
Gifford power feed; No. 1 Avey 6-spindle; No. 30 Natco 48-spindle, 24"

Cincinnati, gear box; No. ½ Avey "9/16" cap.; No. 2 Avey, %" cap.

RADIALS, 2½, 'Amer.; 3' Amer. triple purpose, m.d., 5' Cin. Bick. univ.; 6' Amer.

GRINDERS, No. 16 B. & S. 10"x72" pl., 10"x50" Norton, 16x72" Norton crk. pin,

No. 1 Diamond surf., No. 1 LeBlond: No. 33 Abrasive surf.; No. 65 Heald.

HOBBERS, No. 3 and No. 12 Barber-Colman.
HONER, No. 249 Barnes single spindle, m. d., with hones.
KEYSEATERS, Nos. 0, 2 and 3 Mitts & Merrill.

KEYSEATERS, Nos. 0, 2 and 3 Mitts & Merrill.
LATHES, 33\*\*1 fo' LeBlond; 30\*\*14\*5 & & B; 25\*\*12' Sidney; 20\*\*x 18' Sidney.
MILLERS, Nos. 1 & 3 Cincinnati plain. No. 3 Sundatrand Rigidmil; No. 3 Cincinnati univ. v. p. d., with rotary table; No. 2 Ciati. univ. No. 2½-B K. & T. vert.
PIPE MACHINES, 6\* Landis, 6\* E. C. & B.
PLANERS, 16\* Niles plate, 22\*\*22\*x5' Gar3, 36\*x36\*x14' Chandler.
PIESSES, 165-B Consolidated, dbl. crank grd.; 7-B Rockford dbl. crank grd.; No. 3
Verson grd.; Nos. 18, 19, 20 & 21½ Bliss; No. 102 Cons. dbl. crk., o. b. i.
SAWS, Nos. 11½-B and 12½-B Higgley Code; 6\*x6' Peerless universal,
SCREW MACHINES, Nos. 5 and 6 Wood Tilted Turret; No. 3 Foster; No. 7
Foster, No. 2 W. & S., Nos. 0 & 1 Foster, No. 5 & 65 3 Nl. -Acme.
SHAPERS, 16\* American m. d.,; 16\* Rockford; 20\* Smith & Mills; 32\* Columbia.
SHAPERS, 16\* American m. d.,; 16\* Rockford; 20\* Smith & Mills; 32\*\* Columbia.

SHEARS, No. 208 Niagara slitting, 10 ga. cap. TURRET LATHES, No. 1-B Foster; No. 1-A Warner & Swasey m. d., late type.

Also Large Unlisted Stock

### THE E. L. ESSLEY . MACHINERY . CO

551 W. Washington Blvd., Chicago.

412 N. Plankinton St., Milwaukee

### SOME REAL BARGAINS LOOK THEM OVER!

4' Round Column Universal Radial Drill\$	475.
2-No. 2 Kempsmith Plain Millers \$250.	350.
No. 3 Vertical Brown & Sharpe Miller	650.
Newton Drum Type Duplex, 64" capacity	1000.
14"x28" Cincinnati Duplex	750.
13B Brown & Sharpe _\$300. Model C Vert. Becker	750.
11/2 Cleve. Univ. Mill _ 750. 81 Chicago Brake	125.
No. 76 Consolidated Press	1250
No. 5 Fox Multiple Drill, 8 spindles	750
No. 27 Gardner Grinder	850
53* Gardner Vertical Disc Grinder	550
No. 6 Fox Multiple Head Drill, 30"x44", 24-2" drills 2	2000
21"x14" South Bend Lathe	450
22ª Libby Turret Lathe	1000

What are you looking for? If it is not in this list, write and ask us about it. We are here to meet your requirements.

STATE MACHINERY SALES COMPANY 546 East Woodbridge St., (Cad. 5005) Detroit, Mich.

## Attractive Prices To Move Stock

BORING MILLS

Niles-Bement-P. 72"-2 hds., m.d. Pond 10'-2 heads, motor drive.

DRILL PRESSES

Buffalo post, 1" capacity. Rockford 14" Upright. Superior 20", Silver 20" Upright. Cincinnati 24" Upr., sliding head. Foote-Burt 24"

Fosdick 2' Radial, tapping att. Bickford 3' Radial, tapping att.

LATHES

Champion 14"x6' q. c. g.
Hendey 14"x6', taper att., q. c. g.
South Bend 16"x8', ta., q. c. g. mtr.
Superior and Cinti. 18"x8' q. c. g.
American 20"x8', q. c. g., b. d.
Bradford 36"x14', 3" h. s. Meriden screw mche., auto. tur. Jones & Lamson Turret 3"x36"

MILLERS

Standard No. 4½, table 6½"x24". Brown & Sharpe No. 4 Universal. Ingersoll Fixed Rail 47½x34"x22'.

HYDRAULIC PRESS

PUNCHES AND SHEARS Canedy-Otto No. 4 hd. pr. Long & A. No. 6, 4" thrt., \( \frac{1}{2}" \times \)

Wais & Roos 15" thrt., \{\frac{1}{2}\times\{\frac{1}\tin\{\frac{1}\times\{\frac{1}\times\{\frac{1}\times\{\frac{1}\times\{\frac Beatty 48" throat, 11"x11".

Industrial double end, 1"x1".

Lennox rotary bevel shr., 1" cap.

Doelger-K. h. k. alligator 11" cap. PRESSES

ons. No. 0, Bliss No. 18 O, B. I. . & O. Nos. 3 & 1-O, B. I. Rockford No. 3 O. B. I. 10' Garrison pwr. Brake cap. 16 ga.

8' Keene Brake, hand or foot 16 ga. SHAPERS

Cincinnati 20", 32" Shapers. Gould & Eberhardt 24" B. G. MISCELLANEOUS

Rock'd Hor. Bor. & Drill, Mch. Reliance 2" Bolt Cutter. Northern Hd. Pr. Cr. 10 & 12 ton. Little Giant Hammer 250 lbs. Nazel No. 3-B Hammer, M. D. Bignall & Keeler 6" Pipe Mche. Taylor-W. Pipe Mchs. up to 44" 13/10r-w. Fipe Mcns. up to 47. 10. & H. Opens. Planer 42"x42"x10'. 10' Ohl Pwr Squ. Shear,cap. 16 ga. 22" Acme Steel Bed Upsetter.

## RUSSELL MACHINE COMPANY, 1447 Oliver Bldg., PA.

Bliss No. 18, O. B. I. Bauroth No. 4, O. B. I. V. K. & V. No. 4½, O. B. I. PUNCH PRESSES.

Long & Allstatter No. 2 Single End Punch & Shear. Crosby Co's No. 5 Single End Punch &

Shear. SHEARS & ROLLS.

Shear.
Stoll No. 296, 8¹, 14 gauge.
Bertsch 8¹, 10 gauge.
Canton Fdry. & Mch. Co's. No. 3 Alligator Shear, Motor Drive.
Bertsch No. 7½ Plate Straightening Roll, capacity, ½ x4¹.

BORING MILLS.

Gisholt 36<sup>8</sup> Vertical. I each-Foodick & Rochester Floor Type Boring, Drilling & Milling Machines, Motor Drive.

American Broach & Mch. Co's. 12-ton V-2, Vertical Hydraulic Press.

Send for complete list

Warehouse Dayton, Ohio

The Seifreat-Elstad Machinery Co. DAYTON COLUMBUS CINCINNATI

## Index of Advertisers

A	E
Acme Industrial Co. 91 American Hollow Boring Co. 66 American Tool Works Co. 2 American Tool Works, Inc. 95 Anderion Bros. Mfg. Co. 85 Amstrong Bros. Tool Co. 44 Armstrong-Blum Mfg. Co. 24-25 Atlas Press Co. 63	Fagan, Boyd C. 106 Eastern Machinery Co. 122-123 Economy Engineering Co. 68-69 Edgemont Machine Co. 94 Easter Machinery Co. E. 142 Excelsior Tool & Machine Co. 76
Automatic Machine & Engineering Co	F ·
Avey Drilling Machine Company 20	Fay & Scott         84           Fisher Equipment         50           Foote-Burt Co.         33           Foster Machinery Co.         114
_	and the same of th
Bartlett Co., Edwin E. 54 Baumbach Mfg. Co., E. A. 86 Bennett Machinery Co. 139 Bernatein & Co., Geo. M. 136 Beston Gear Works Sales Co. 79 Bradford Machiner Tool Co. 17 Brandt Machinery Co. 114 Brewnter Co., Wm. 34 Broadway Machinery Co., Inc. 140 Brown Machinery Co. 118 Brownell Machinery Co. 111 Browning & Co., Inc., Victor R. 65 Buffalo Forge Co. Front Cover	G Gallmeyer & Livingston Co
Buffalo Forge Co Front Cover Burke Machine Tool Co 57	н
Canton Foundry & Mche. Co	Hammond Machinery Builders, Inc. 19 Hammond Manufacturing Co. 31 Hannifin Mfg. Co. Inside Front Cover Hattford Special Machinery Co. 94 Haskins Co. R. G. 71 Hendley & Whittemore Co. 26 Hill, Clarke & Co. of Chicago 126 Hisey-Wolf Machine Co
D	
Danly Machine Specialties, Inc	J
Davis Keyseater Co. 57 Davis Machinery Exchange 113 Defiance Machine Works 8 Detroit Stamping Co. 93 Donahue Steel Products Co. 133	J. & H. Electric Co., Inc

### Index of Advertisers-Continued

K	Oliver Instrument Co 87
Kearney & Trecker Corp 121	Onsrud Machine Works, Inc 16
Keller Mechanical Engineering	Osborne & Sexton Mchy. Co 129
Corporation	
Kinsey Co., E. A	
Klauber Machinery Co., E. L 113	
	Palmer-Edwards Co 135
L	Pedrick Tool & Machine Co 36
-	Peerless Machine Co 59
LaPorte Machine & Tool Co 47	Peerless Surfacing Machine Co 60
LeBlond Mch. Tool Co., R. K., 74-75	Plunket Machine Co., J. E 52
74-75	Porter-Cable-Hutchinson Corp 61
Leland-Gifford Co	Procunier Safety Chuck Co 89
Lenney Mche. & Mfg. Co., Inc. 15 Lewthwaite Machine Co., T. H. 86	
Libert Machine Co	R
Linley Brothers Co. 63	-
Little Co., W. P	Racine Tool & Machine Co 58
Luers Incorporated 48	Rahn-Larmon Co 11
Luma Electric Equipment Co 49	Randle Machinery Co 108
	Reed-Prentice Corporation 3
**	Reeve-Fritts Company 109
M	Reliance Mchy, Sales Co
McDonald Machinery Company 115	Ridge Tool Co
Machine Tools Sales Co	Riverside Machinery Depot 134
Madison-Kipp Corporation 27	Rockford from Works 62
Mall Tool Co	Roper Corporation, Geo. D 95
Marr-Galbreath Machinery Co 106	Rosenfeld Machinery Co
Marsh Machinery Co., A. R 116 Martin Tool & Die Works, J. E. 83	Russell Machine Co
Massachusetts Gear & Tool Co 78	Ruthman Machinery Co
Midland Steel & Equipment Co 139	Ryemon & Sont Inc., Joseph T 9
Midwest Equipment Co	
Mid-West Machine Tool & Sup-	S
ply Co	-
Miles Machinery Co	Schellenbach-Hunt Tool Co 104
Miller & Crowningshield	Scherr Co., George 58
Molitor Machinery Co., Chas 112 Monarch Machine Tool Co 6	Schneider Machinery Co 141
Morey and Co. Inc	Schwerdtle Stamp Co
	Segal Machinery Co
	Seifreat-Elstad Machinery Co 143
N	Severin Machinery Corporation 116
National Acme Co 10	Sheldon Machine Co 53
Nicholson & Co. W. H. 82	Sigourney Tool Co 83
Nicholson & Co., W. H	Simmons Machine Tool Corp 132
Norton-Broadway Mchy. Co 112	Smith & Mills Co
	Springfield Machine Tool Co 85 Standard Electrical Tool Co 29
_	Standard Electrical Tool Co 29 Standard Gage Co., Inc 87
0	Standard Shop Equip. Co., Inc 67
O'Brien Machinery Co 110	State Machinery Sales Co 142
Oesterlein Machine Co	Stecher Company, Charles

Please say "Blue Book" when writing to advertisers.

### Index of Advertisers-Continued

Stevens Inc., John B	v
Stochr Machinery Co., A. M 118 Stoody Company	Vim Electric Tool Co
Strafer Machinery Co 108	w
Strand & Co., N. A	Wachs-Gregg & Co 110
Sun Machinery Co., Inc. 124-125	Wade Tool Co
Sundstrand Machine Tool Co	Walton Co. 82 Wardwell Manufacturing Co. 45
Superior Machine & Eng. Co. 35	Webb Machinery Co., O. T 118
Syracuse Supply Company 115	Wertman Machinery Co., M. A. 118
т	West Penn Machinery Co 107 Western Machine Tool Works 14
Taylor-Hall Welding Corporation 114	Western Screw-Products Co 93
Taylor & Fenn Co	Western Tool & Mfg. Co
Thompson Grinder Co	Whitney Metal Too I Co 51
Townsend Mfg, Co., H. P	Whirlwind Products Co
Triplex Machine Tool Corp 54	Wigglesworth Machinery Co 119 Wilson, K. R
	Winterer, Herman L 111
U	Winterhoff Tool & Machine Co. 147 Wittek Manufacturing Co 32
United Machinery & Supply Co. 105 United States Drill Head Co 61	Y
Used and Rebuilt Machinery 105 to 143	Vohe Sweek Co Wm S 90



# The Blue Book

Goes to the Heart of 96% of the Best Plants in this Country

The above statement is the result of careful mail inquiries directed to thousands of the larger tool-using concerns.

It is also mailed every month to the leading importers of American machinery and equipment in foreign countries.

# Winterhoff DRIVEN Portable Tools

For Economical Low Cost Machining of Small Parts

# 10½ Sensitive Bench Drill



No. 0 JUNIOR DRILL 0 to % Capacity

This remarkable little drill has earned a warm spot in the hearts of many production shop as well as tool room foremen. Repeat orders tell the tale. Equipped with motor, first grade standard chuck, and many other exclusive features.

Send for Complete Descriptive Circular



**Repulsion Induction Motors** 

Double End Grinders Double End Disc Grinders Combination Tool & Disc Grinders

The most economical and accurate method of producing true surfaces in production and tool room. Discs are two-sided and reversible. Completely equipped for the job. Repeat orders tell the story.

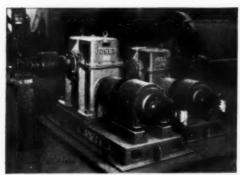
Write Your Dealer or Direct to Us for Information

Winterhoff Tool & Machine Co. 109 South Elkhart Ave., Elkhart, Ind.

# Jones

# SPEED REDUCERS

THE IDEAL DRIVES



JONES Heavy Duty Worm Gear Reducers
Driving Tumbling Mills in Steel Foundry

Hundreds of Jones Speed Reducers are making history in the plants of the nation.

Possibly you too have a speed reduction problem in your power plant; a Jones Speed Reducer can be had that will fill your needs.

The complete line includes Spur, Worm, Herringbone and Herringbone-Maag Reducers, and our engineers therefore can give you an unbiased recommendation.

All carried in stock in standard ratios.

W. A. Jones Foundry & Machine Co. 4450 W. Roosevelt Road, Chicago, Ill.



# Mechanical and Electrical Design Keeps Hisey Drill Sales Climbing

EACH year the sales of Hisey Electric Drills have shown a very substantial increase. Scores of the largest manufacturers in the country have standardized on Hisey Drills.

The superiority of Hisey Drills is due to their improved mechanical and electrical design. Each Hisey motor is especially designed for its work. All drills look more or less alike on the outside but it's the internal mechanical and electrical construction that counts. Built for continuous production work and designed to withstand the abuse of unskilled hands, Hisey drills give unequalled performance.

Write for catalog 40-M which shows Hisey Electric Drills, Screw Drivers, Reamers and Nut Setters in a wide range of types and sizes.

Agents in All Principal Cities







Balancing Tools



These machines will make work easier, production higher and costs lower. Send for circulars that show how and why.

Write toda Address Dept. H

